

Sac 50 Bus/Carpool Lanes and Community Enhancements Project

SACRAMENTO COUNTY, CALIFORNIA
DISTRICT 3 – SAC – 50, PM L0.9/12.8
03-44161

DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT



**Prepared by the
US Department of Transportation
Federal Highway Administration
and the
State of California Department of Transportation**



November 2006



General Information About this Document

What's in this document?

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) have prepared this Draft Environmental Impact Report/Environmental Assessment, which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Sacramento County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization and/or mitigation measures.

What should you do?

- Please read this Draft Environmental Impact Report/Environmental Assessment (EIR/EA). Additional copies of this document, as well as the technical studies, are available for review at:
 - Caltrans District 3 Sacramento Office
2389 Gateway Oaks Drive, Suite 100
Sacramento, CA 95833
(916) 274-0586
 - Sacramento Public Libraries:
 - Central Library
828 I Street
Sacramento, CA 95814
 - E.K. McClatchy Neighborhood Library
2112 22nd Street
Sacramento, CA 95818
 - McKinley Neighborhood Library
601 Alhambra Boulevard
Sacramento, CA 95816
 - Rancho Cordova Community Library
9845 Folsom Boulevard
Sacramento, CA 95827
 - Fair Oaks Library
11601 Fair Oaks Blvd
Fair Oaks, CA 95628
 - Folsom Public Library
300 Persifer Street
Folsom, CA 95630

- Attend public workshops. Public workshops will be held to present the project and solicit comments on the Draft EIR/EA at the following locations, dates and times:
 - David Lubin Elementary School
3535 M Street, Sacramento
Weds., January 10, 2007, 5 PM - 8 PM
 - Mitchell Middle School
2100 Zinfandel Drive, Rancho Cordova
Thurs., Jan. 11, 2007, 5 PM - 8 PM
- We welcome your comments. If you have any comments regarding the proposed project, please attend the public workshop and/or send your written comments to Caltrans by the deadline.
- Submit comments via postal mail to:

Jeremy Ketchum, Environmental Branch Chief
Attention: Ken Lastufka
Dept. of Transportation, Environmental Planning
2389 Gateway Oaks Drive, Suite 100
Sacramento, CA 95833
- Submit comments via email to ken_lastufka@dot.ca.gov.
- Submit comments by the deadline: February 13, 2007.

What happens after this?

After comments are received from the public and reviewing agencies, Caltrans and FHWA may: (1) give environmental approval to the proposed project; (2) undertake additional environmental studies; or (3) abandon the project. If the project is given environmental approval and funding is appropriated, the Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Ken Lastufka, Office of Environmental Management, S-1, 2389 Gateway Oaks Drive, Sacramento, CA 95833; (916) 274-0586 Voice, or use the California Relay Service TTY number, 1-800-735-2929.

SAC 50 BUS/CARPOOL LANE AND COMMUNITY ENHANCEMENTS PROJECT

This project is located in the City and County of Sacramento along
US 50 between downtown and Sunrise Boulevard

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) California Public Resources Code §21000 et seq
(Federal) 42 USC 4332(2)(C)


US DEPARTMENT OF TRANSPORTATION
Federal Highway Administration, and

THE STATE OF CALIFORNIA
Department of Transportation

11/29/06
Date of Approval

11/30/06
Date of Approval


Katrina Pierce
Chief, North Region Environmental Planning
California Department of Transportation


Gene Fong
Division Administrator
Federal Highway Administration

SUMMARY

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under CEQA and the FHWA is lead agency under NEPA.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a “lower level” document is prepared for NEPA. One of the most commonly seen joint document types is an Environmental Impact Report/Environmental Assessment (EIR/EA).

Following receipt of public comments on the Draft EIR/EA and circulation of the Final EIR/EA, the lead agencies will be required to take actions regarding the environmental document. Caltrans will determine whether to certify the EIR, to issue Findings and/or to file a Statement of Overriding Considerations pursuant to CEQA. For NEPA, FHWA will decide whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS).

S-1 NEED AND PURPOSE

Commute travel on US 50 is heavily congested with extensive periods of stop-and-go traffic. Residential, commercial, and employment development in the US 50 corridor is projected to continue growing at a substantial rate with strong job growth in downtown Sacramento, Rancho Cordova, and the City of Folsom. Personal mobility and reliable commute times are declining in the corridor due to increasing traffic congestion on US 50. Downtown Sacramento job growth is increasing the number of commuters and commute buses that travel through residential neighborhoods from freeway exits to employment sites.

The project purpose is to:

- Improve mobility.
- Provide an option for reliable peak period travel time.
- Improve traffic operations by reducing congestion and travel time.
- Use the highway facilities as efficiently as possible.
- Provide incentives for commuters to use carpools, vanpools, or buses for peak period travel.
- Identify specific strategies and projects to improve the adjacent street system so as to enhance neighborhood livability.
- Coordinate with other projects and studies being conducted in the corridor.

S-2 PROPOSED ACTION

Caltrans and FHWA, working together with the Sacramento Transportation Authority, City of Sacramento, City of Rancho Cordova, and Sacramento County, are proposing to add bus/carpool lanes in the existing median of US 50 from downtown Sacramento to Sunrise Boulevard in Sacramento County. Specifically, the project includes:

- Constructing eastbound (EB) and westbound (WB) bus/carpool lanes on US 50 from downtown Sacramento to Sunrise Boulevard.
- Widening to the outside between Sunrise Boulevard and Bradshaw Road. Between Bradshaw Road and downtown Sacramento, the existing median is wide enough; no outside widening is planned.
- Provide CHP Enforcement Areas in the median in 6 locations, including:
 - West of Howe Avenue
 - West of Watt Avenue
 - West of Mayhew Road

- At Routier Road
 - West of Zinfandel Drive
 - West of Sunrise Boulevard
- Evaluate ramp meter deficiencies and the appropriate findings to be included in the final project scope.

The project also proposes to include community enhancements identified by project jurisdictions: the City of Sacramento, the City of Rancho Cordova, and Sacramento County (Section 1.7).

S-3 OTHER PROPOSED ACTIONS IN PROJECT VICINITY

The following FHWA/Caltrans projects are currently planned or in the early planning stages along US 50 in the general vicinity of the proposed project:

- Construct auxiliary lanes from Mather Field Road to Zinfandel Drive
- Upgrade metal beam guardrail to a concrete median barrier from the Sacramento/Yolo county line to Bradshaw Road
- Place eastbound ramp meters at the Stockton Boulevard, 65th Street, Mather Field Road, and Zinfandel Drive interchanges
- Interchange improvements and new bus/carpool connectors on the US 50 and State Route (SR) 99 interchange
- Interchange improvements and new bus/carpool connectors on the US 50 and I-5 interchange

S-4 PROJECT ALTERNATIVES

Two build alternatives (Alternatives 10D-1 and 10D-3) and the No-Build Alternative were evaluated for the project. These are described in detail in Chapter 1 (Section 1.6) and shown on Figure 1-3 (a-c). The following is a brief overview of the alternatives.

• Alternative 10D-1

Alternative 10D-1 proposes to construct bus/carpool lanes from Sunrise Boulevard to the Oak Park Interchange (the US 50/SR 99/I-80 interchange). Between Stockton Boulevard and Bradshaw Road, the existing 36-foot median will accommodate the bus/carpool lanes without outside widening. Between Bradshaw Road and Sunrise Boulevard, the existing 22-foot median isn't sufficient to accommodate the bus/carpool lanes. Outside widening is proposed through this section to provide standard-width lanes and shoulders. The Elmhurst Viaduct, Brighton Overhead, Folsom Blvd Undercrossing, and State College Undercrossing will be widened in the median. The West Citrus Overhead would be widened on the outside. These structures are shown on Figure 1-3a.

Under Alternative 10D-1, the EB bus/carpool lane would begin at 27th Street. The WB bus/carpool lane would end at 28th Street and become a mixed flow lane. The WB bus/carpool lane transitions into the existing No. 1 mixed flow lane by dropping the outside mixed flow lane (No. 4) at the 26th/W Street off-ramp. All lanes would shift to the right and the actual lane drop would occur at the existing option lane at 26th Street. The project would end at this point and no work would be done to the W-X portion of the freeway (see Figure 1-3a).

Only minor improvements are currently proposed for interchanges. Currently, the only additional right of way required is two small slivers of acquisitions from commercial properties for ramp widening at the Zinfandel Drive Interchange (Figures 2.1-1m and 1n).

• Alternative 10D-3

Alternative 10D-3 proposes to construct bus/carpool lanes in the median from Sunrise Boulevard to Watt Avenue. Between Watt Avenue and Bradshaw Road, the existing 36-foot median will accommodate the bus/carpool lanes without outside widening. Between Bradshaw Road and Sunrise

Boulevard, the existing 22-foot median isn't sufficient to accommodate the bus/carpool lanes. Outside widening is proposed through this section to provide standard-width lanes and shoulders. The West Citrus Overhead would be widened on the outside.

The EB bus/carpool lane would begin just east of Watt Avenue. The WB bus/carpool lane would end prior to the Watt Avenue WB off-ramp. The WB bus/carpool lane transitions into the existing No. 1 mixed flow lane by dropping the outside mixed flow lane at the Watt Avenue off-ramp. All lanes would shift to the right and the actual lane drop would occur at the existing trap lane to northbound Watt Avenue. The project would end at this point and no work would be done west of this location (see Figure 1-3b).

Only minor improvements are currently proposed for interchanges. Currently, the only additional right of way required is two small slivers of acquisitions from commercial properties for ramp widening at the Zinfandel Drive Interchange (Figures 2.1-1m and 1n).

- ***No-Build Alternative***

The No-Build Alternative would not implement any of the improvements involved in the project.

S-5 POTENTIAL ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

Table S-1 summarizes the potential impacts of and mitigation measures for all proposed project alternatives. Details for each environmental category are presented in Chapter 2 (Affected Environment, Environmental Consequences, and Mitigation Measures) of this document.

Table S-1. Summary of Potential Environmental Consequences, Proposed Mitigation, Minimization, and Avoidance Measures by Alternative

Affected Resources	Potential Impacts	Mitigation, Minimization, and Avoidance Measures	CEQA Significance After Measures*	See Section
Parks and Recreational Facilities	Build Alternatives: Replace the existing White Rock Pedestrian Over Crossings (POC) at White Rock Park and the Manlove POC at Salmon Falls Park in Rancho Cordova	<ul style="list-style-type: none"> Caltrans and Cordova Recreation and Park District worked together to design the new POC at White Rock Park. The existing POCs will remain operational while the new structures are built 	LS	2.4.2
Community Impacts: Land Use	Build Alternatives: Sacramento County's General Plan supports the conversion of existing mixed-flow lanes to bus/carpool lanes, and opposes the development of new bus/carpool lanes.	None	LS	2.1.2
Community Impacts: Environmental Justice	Build Alternatives: There are minority and low income populations within the Study Area. However, as the project would alter an existing freeway, impacts in the vicinity of these neighborhoods are limited. Isolated traffic volume increases are expected at the proposed entrance/exit ramp locations. Based on existing traffic Levels of Service, there would not be an adverse impact.	None	LS	2.3.3
Community Impacts: Pedestrian and Bicycle Facilities	Build Alternatives: <ul style="list-style-type: none"> The proposed project would replace the elevated pedestrian crosswalk that provides pedestrian access between the communities south of US 50 and White Rock Community Park. The project will also affect an overcrossing that provides pedestrian access between the communities residing south of US 50 and Salmon Falls Park. 	<ul style="list-style-type: none"> A new pedestrian overcrossing (POC) would be built at White Rock Park and Salmon Falls Park prior to demolition of the existing POC. The new overcrossing would comply with current construction standards and the American Disabilities Act (ADA). To minimize the impact of closing US 50 during the demolition of the two pedestrian over-crossings, the following measures are proposed: <ul style="list-style-type: none"> The demolition of both structures will not occur at the same time. The closures will be noticed in the local media, including newspapers, television, and radio. The closures will also be noticed on the changeable message signs that operate on east-bound and west-bound US 50. 	LS	2.5.2

Affected Resources	Potential Impacts	Mitigation, Minimization, and Avoidance Measures	CEQA Significance After Measures*	See Section
		<ul style="list-style-type: none"> • Best Management Practices (BMPs) would be employed to minimize temporary construction impacts. 		
Visual Resources	Build Alternatives: <ul style="list-style-type: none"> • Potential impacts from vegetation removal • Potential glare and light 	<ul style="list-style-type: none"> • For new sound walls, similar material, pattern, color and style are recommended to provide continuity and visual interest to the corridor landscape. • Prepare a landscape plan to provide appropriate landscape screening of sound walls to minimize the potential for graffiti and other nuisances. • Incorporate appropriate aesthetic enhancements for any proposed retaining walls, sound walls, and slope paving. Designs should be in harmony with the existing highway materials and designs used for US 50 and vicinity. • Contour grade and round cut and fill slopes so as to reflect the contours of adjacent, undisturbed topography to the extent feasible. Grading operations should not result in angular landforms. • During clearing and grubbing, stockpile existing surface soils and duff from the construction site as part of the excavation work. Resurface all new cut/fill slopes with stockpiled material to enhance re-vegetation efforts. • Plant species native to the area should be used when re-vegetation is being performed. Often, native grasses and shrubs are the first to re-colonize after a disturbance event such as a disease or fire. Use appropriate native species for the project. • Use appropriate erosion control methods to all disturbed areas. • Projects disturbing more than 2.4 acres of land require a National Pollution Discharge Elimination System (NPDES) permit. Disturbance includes all newly paved land surfaces. Compliance with the Storm Water Management Plan and Storm Water Quality Standards is also required. Develop plans and specifications necessary to comply with the NPDES and Storm Water Quality Standards. 	LS	2.6.3 2.6.4
Water Quality	Build Alternatives: <ul style="list-style-type: none"> • Potential for erosion and increased turbidity during and immediately after construction. 	<ul style="list-style-type: none"> • The project shall adhere to the conditions of the Caltrans Statewide NPDES Permit CAS # 000003, 	LS	2.9.2 2.9.3

Affected Resources	Potential Impacts	Mitigation, Minimization, and Avoidance Measures	CEQA Significance After Measures*	See Section
		<p>(Order # 99-06-DWQ), issued by the State Water Resources Control Board.</p> <ul style="list-style-type: none"> Construction projects with a disturbed area of more than one acre or by request of a Regional Water Quality Control Board require a Caltrans approved Storm Water Pollution Prevention Plan (SWPPP) containing project specific effective erosion and sediment control measures. These measures must address soil stabilization practices, sediment control practices, tracking control practices, and wind erosion control practices. In addition, the project plan must include non-storm water controls, waste management and material pollution controls. The disturbed soil area appears to exceed one acre and it is anticipated that a SWPPP level of temporary pollution controls will be specified for the project; Standard Special Provision 07-345 therefore shall be included in the Plans, Specifications & Estimates package to address these temporary construction water pollution control measures. As directed by Caltrans' Storm Water Management Plan (SWMP) and the Project Planning and Design Guide (PPDG) an evaluation of the project using the most recent approved evaluation guide is essential in determining if the incorporation of permanent storm water runoff treatment measures shall be considered for this project. If a SWPPP is specified, then a Notification of Construction (NOC) shall be submitted to the Central Valley Regional Water Quality Control Board at least 30 days prior to the start of construction. Use of best management practices (BMPs) to reduce any potential impacts to water quality. 		
Paleontology	Build Alternatives: Potential for fossil remains to be uncovered by excavations during project construction	<ul style="list-style-type: none"> Monitor where excavation or road cuts could disturb fossil-bearing sedimentary strata Contractor undertaking monitoring will adhere to the paleontological mitigation plan 	LS	2.10.3 2.10.4
Hazardous Materials	Build Alternatives: During site investigation, remediation activities, and subsequent construction activities, public health and the	<ul style="list-style-type: none"> Prepare health and safety plans to address potential 	LS	2.11.2 2.11.3

Affected Resources	Potential Impacts	Mitigation, Minimization, and Avoidance Measures	CEQA Significance After Measures*	See Section
	<p>health of the construction workers could potentially be affected by airborne dust particles containing heavy metals, petroleum hydrocarbons, asbestos, and lead-based paint from bridge materials</p>	<p>effects of the various chemical compounds that could be encountered at each property with potentially hazardous waste issues</p> <ul style="list-style-type: none"> It is Caltrans policy to avoid all potential aspects of hazardous waste, whenever possible. If involvement becomes necessary prior to, during and/or after construction, protection for employees, workers and the community would be implemented. Confirmation and documentation of suspected hazardous waste issues will be performed, and an attempt will be made to have responsible parties perform the cleanup activities. For affected soil encountered beneath the project, possible cleanup methods include excavation and disposal of the affected soil at appropriately permitted landfills, aeration of soil in situ or aboveground, and bioremediation. For affected groundwater encountered beneath the project, possible cleanup methods include removal of affected water, with subsequent disposal or treatment. Upon selection of a preferred alternative, Caltrans will perform site investigations for all identified properties to confirm or dismiss potential hazardous waste issues. Upon confirmation of hazardous waste issues, responsible parties will be sought for appropriate cleanup. 		
Air Quality	<p>Build Alternatives:</p> <ul style="list-style-type: none"> Short-term construction-related air emissions, including dust and exhaust emissions from construction equipment. 	<ul style="list-style-type: none"> In order to minimize the temporary construction-related emission impacts, the contractor will be required to use Best Management Practices and comply with Caltrans Standard Specifications, Section 7-1.01F, "Air Pollution Control" and Section 10, "Dust Control." The contractor is also required to comply with all pertinent rules, regulations, ordinances, and statutes of the Sacramento Metropolitan Air Quality Management District. 	LS	2.12.2 2.12.3
Noise	<p>Build Alternatives:</p> <p>The estimated increase in noise levels due to the project was 1 to 2 dBA, which is not considered substantial. However, receivers immediately adjacent to the project (such as homes, apartments, and hotels/motels) are currently experiencing noise levels above the federal</p>	<ul style="list-style-type: none"> If feasible, Caltrans intends to incorporate noise abatement measures in the form of barriers (sound walls) at the following 11 locations: WB2 (Alt. 10D-1 only), WB4, WB5, WB6, WB7, WB8, WB9, EB9, EB11A, EB11B, and EB12 (see Table 2.13-5 and 	LS	2.13.2 2.13.3

Affected Resources	Potential Impacts	Mitigation, Minimization, and Avoidance Measures	CEQA Significance After Measures*	See Section
	threshold of 67 dBA.	Figure 2.1-1)		
Animal Species	Build Alternatives: Potential impacts to white-throated swifts, bats.	<ul style="list-style-type: none"> • Conduct pre-construction surveys • Install exclusionary devices to prevent nesting and roosting • Daily removal of nests if areas cannot be excluded • Perform construction outside of nesting season, if possible • Remove woody vegetation prior to nesting season 	LS	2.17.3 2.17.4
Threatened and Endangered Species	Build Alternatives: Identified elderberry bush located adjacent to highway.	<ul style="list-style-type: none"> • Environmentally sensitive area (ESA) fencing • Inform contractor of elderberry bush prior to construction and coordinate ESA fencing. 	LS	2.17.3 2.17.4

* LS = Less than significant

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CHAPTER 1 – PROPOSED PROJECT

1.1 INTRODUCTION

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) propose to add bus/carpool lanes in the existing median of US 50 from Sunrise Boulevard to downtown Sacramento in Sacramento County. The total length of the project is approximately 13 miles. The proposed improvements include eastbound (EB) and westbound (WB) bus/carpool lanes and CHP enforcement areas in the median at the 6 locations. The project also proposes to include community enhancements identified by project jurisdictions: the City of Sacramento, the City of Rancho Cordova, and Sacramento County. Please refer to Section 1.7 for further information regarding community enhancements.

Figure 1-1 shows the project vicinity and location.

This project was included in the 1998 State Transportation Improvement Program (STIP) with construction scheduled to begin in the fiscal year 2010/2011.

1.2 SCOPE OF ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

This document contains environmental analyses pertaining to the US 50 Bus/Carpool Lanes Project from downtown Sacramento to Sunrise Boulevard in Sacramento County, California. This document satisfies requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA is the lead agency for NEPA and Caltrans is the lead agency for CEQA.

This Environmental Impact Report/Environmental Assessment (EIR/EA) is an informational document that: 1) informs the public agency decision-makers and the public of the environmental effects of the proposed project; and 2) identifies potential minimization, avoidance, and/or mitigation measures to minimize any adverse impacts.

A Notice of Preparation (NOP) to prepare an EIR was released in June 2005.

Opportunities for public comment on the EIR/EA will occur during the 60-day public availability period on the Draft EIR/EA and at the public meetings/open houses that Caltrans will hold on this document. The Final EIR/EA will take into account comments received on the Draft EIR/EA.

1.3 PURPOSE AND NEED

Commute travel on US 50 is heavily congested with extensive periods of stop-and-go traffic. Residential, commercial, and employment development in the US 50 corridor is projected to continue growing at a substantial rate with strong job growth in downtown Sacramento, Rancho Cordova, and the City of Folsom. Personal mobility and reliable commute times are declining in the corridor due to increasing traffic congestion on US 50. Downtown Sacramento job growth is increasing the number of commuters and commute buses that travel through residential neighborhoods from freeway exits to employment sites.

The project purpose is to:

- Improve mobility.
- Provide an option for reliable peak period travel time.
- Improve traffic operations by reducing congestion and travel time.
- Use the highway facilities as efficiently as possible.

- Provide incentives for commuters to use carpools, vanpools, or buses for peak period travel.
- Identify specific strategies and projects to improve the adjacent street system so as to enhance neighborhood livability.
- Coordinate with other projects and studies being conducted in the corridor.

Existing Facility

The existing facility within the project limits is an 8-lane urban freeway with auxiliary lanes at various locations. US 50, one of the country's last intact transcontinental highways (Lincoln Highway), connects West Sacramento with Ocean City, Maryland (a distance of 3,073 miles). In Sacramento, US 50 was constructed in the mid/late 1920s along what is today Folsom Boulevard. Beginning in the mid 1960s, US 50 in Sacramento County was reconstructed as an 8-lane freeway along a new alignment. The new alignment joined the existing alignment east of Sunrise Boulevard.

Traffic Conditions

US 50 serves an important transportation corridor, linking downtown Sacramento with suburban areas to the east. The roadway also serves inter-regional travel within the state of California and interstate travel east to Nevada and beyond. The corridor has experienced substantial growth over the last thirty to forty years. Growth in the corridor is expected to continue, as suburban development occurs in the eastern portions of unincorporated Sacramento County, the City of Rancho Cordova, the City of Folsom, and El Dorado County. The Sacramento Area Council of Governments (SACOG) has identified the City of West Sacramento, Downtown Sacramento, Power Inn/South Watt, Mather/Rancho Cordova, Aerojet, and South Folsom as areas of high growth.

Table 1-1 at the end of this section summarizes existing (2004) and projected year 2030 daily traffic volumes in the corridor. Increased traffic volumes of 57 to 75 percent are anticipated in this segment of the US 50 corridor between Interstate 5 downtown Sacramento and Sunrise Boulevard.

Both westbound A.M. and eastbound P.M. directions during current peak hours operate at Level of Service (LOS) F (Table 1-2). LOS F is defined as very congested with traffic jams, especially where vehicles merge (Figure 1-2). By 2030, LOS will remain at F (Table 1-3). The Caltrans District 3 Draft US 50 Transportation Concept Report (TCR) and District System Management Plan (August 1992) both propose a concept LOS E for US 50 in Sacramento County.

Today's congestion typically lasts from one-and-a-half hours to two-and-a-half hours at various locations in the corridor. Congestion is defined by Caltrans as speeds of less than 35 mph, and lasting 15 minutes or more. By the year 2030, congestion will last from three to four hours during both the morning and afternoon commutes.

Accidents

The Caltrans Traffic Accident Surveillance and Analysis System (TASAS) data for the three-year period July 1, 2002 through June 30, 2005 is summarized in Table 1-4.

Within the three-year period, there were 2,707 accidents with 4 fatalities along US 50 from the Oak Park Interchange to Sunrise Boulevard. Fifty-eight percent of the total accidents reported for the three year period were rear end type collisions, 17% were hit object, and 15% sideswipe.

The total accident rate was higher than the average rate for a similar highway segment statewide. However, the fatality rate was lower than the statewide average.

These statistics indicate that slowdowns, lane changing, and congestion were the main cause of accidents within the project area. These types of collisions are indicative of a congested area. The proposed project would increase capacity, reduce congestion, and contribute to a decrease in delays and lower overall accident rates.

Existing Pavement

The existing Portland cement concrete (PCC) pavement was constructed between 1960 and 1973. Major rehabilitation work is expected within the typical 30-year PCC pavement life. Such rehabilitation could be coordinated with construction of the proposed median bus/carpool lanes, thus allowing flexibility in staging and lane closures during construction.

1.4 PROJECT DESCRIPTION

The project is located in Sacramento County on U.S 50 from 27th Street in downtown Sacramento to Sunrise Boulevard. The project covers a distance of approximately 13 miles. Within the limits of the proposed project, the number of lanes in each direction varies from three to six. Lane widths are 12 feet, with 8 to 10 foot shoulders.

1.5 ENVIRONMENTAL SETTING

The project site stretches from downtown Sacramento, through the City of Rancho Cordova, and to the eastern portion of Sacramento County. The climate fluctuates with the seasons with hot dry summers and cool wet winters. Average annual rainfall in the project area is approximately 22 inches. Elevations range throughout the project site from between 15 to 110 ft. The project is located in the Sacramento West, Sacramento East, and Carmichael United States Geological Survey (USGS) topographic quadrangles.

The project is located within a highly developed urban area. Land uses near the project area include residential, commercial, and industrial development. The commercial and industrial developments tend to be clustered near the interchanges. Several public parks, including Coloma Park, Oki Park, Glenbrook Park, Salmon Falls Park, and White Rock Park are adjacent to the project.

The freeway corridor itself dominates the visual nature of the project area. US 50 is a major route that traverses California from its western limits west of Sacramento to the California/Nevada border and continuing east toward the northeastern United States, terminating in Maryland. The freeway is a predominant commercial and recreational route serving the Sacramento Valley, Sierra foothills, and Lake Tahoe communities.

1.6 ALTERNATIVES

Originally, four build alternatives and the No-Build were evaluated as part of the project; Alternatives 5B, 6B, 7B, and 10D. Later, as a result of community concerns and cost considerations, Alternatives 10D-1, 10D-2, and 10D-3 were added as variations to Alternative 10D. The alternatives were analyzed extensively in the environmental technical studies (listed in Appendix H).

As a result of the technical analysis, two of the built alternatives (Alternative 10D-1 and 10D-3), along with the No-Build alternative, are carried forward as the project alternatives included in this draft EIR/EA. The project alternatives are described below, shown on Figure 1-3 (a-c), and summarized in Table 1-5.

Alternatives considered but eliminated from further discussion as a result of the technical studies, alternatives considered but eliminated as a result of and after the Technical Advisory Committee (TAC)

and Corridor Advisory Committee (CAC) processes, and other alternatives considered but eliminated are also included in this section.

1.6.1 Project Alternatives

Two build alternatives and the No-Build were evaluated for the project: Alternatives 10D-1 and 10D-3.

- **Alternative 10D-1**

Alternative 10D-1 proposes to construct bus/carpool lanes from Sunrise Boulevard to the Oak Park Interchange. Between Stockton Boulevard and Bradshaw Road, the existing 36-foot median will accommodate the bus/carpool lanes without outside widening. The width of the median shoulders, bus/carpool lane, and No. 1 and 2 mixed flow lanes would be non-standard; design exceptions for the widths have been approved. Lanes are numbered from left to right, with the leftmost lane (or fast lane) the No. 1 lane. Between Bradshaw Road and Sunrise Boulevard, the existing 22-foot median isn't sufficient to accommodate the bus/carpool lanes. Outside widening within the existing State right of way is proposed through this section to provide standard-width lanes and shoulders. The Elmhurst Viaduct, Brighton Overhead, Folsom Blvd Undercrossing, and State College Undercrossing will be widened in the median. The West Citrus Overhead would be widened on the outside. These structures are shown on Figure 1-3a.

Under Alternative 10D-1, the EB bus/carpool lane would begin at 27th Street. The WB bus/carpool lane would end at 28th Street and become a mixed flow lane. The WB bus/carpool lane transitions into the existing No. 1 mixed flow lane by dropping the outside mixed flow lane (No. 4) at the 26th/W Street off-ramp. All lanes would shift to the right and the actual lane drop would occur at the existing option lane at 26th Street. The project would end at this point and no work would be done to the W-X portion of the freeway (see Figure 1-3a). Alternative 10D-1 is approximately 12.6 miles in length.

Only minor improvements are currently proposed for interchanges between Stockton and Sunrise Boulevards. At the Mather Field and Zinfandel interchanges, ramp widening is proposed for the EB off-ramp, the EB diamond on-ramp, the EB loop on-ramp and the WB loop on-ramp. At the Zinfandel Interchange, ramp widening is proposed for the EB off-ramp, the EB diamond on-ramp and the EB loop on-ramp. Currently, the only additional right of way required for all alternatives is two small slivers of acquisitions from commercial properties for ramp widening at the Zinfandel Drive Interchange (Figures 2.1-1m and 1n).

- **Alternative 10D-3**

Alternative 10D-3 proposes to construct bus/carpool lanes in the median from Sunrise Boulevard to Watt Avenue. Between Watt Avenue and Bradshaw Road, the existing 36-foot median will accommodate the bus/carpool lanes without outside widening. Between Bradshaw Road and Sunrise Boulevard, the existing 22-foot median isn't sufficient to accommodate the bus/carpool lanes. Outside widening is proposed through this section to provide standard-width lanes and shoulders. The West Citrus Overhead would be widened on the outside.

The EB bus/carpool lane would begin just east of Watt Avenue. The WB bus/carpool lane would end prior to the Watt Avenue WB off-ramp. The WB bus/carpool lane transitions into the existing No. 1 mixed flow lane by dropping the outside mixed flow lane at the Watt Avenue off-ramp. All lanes would shift to the right and the actual lane drop would occur at the existing trap lane to northbound Watt Avenue (a trap lane is a traffic lane that becomes a mandatory off-ramp). The project would end at this point and no work would be done west of this location (see Figure 1-3b).

Only minor improvements are currently proposed for interchanges between Stockton and Sunrise Boulevards. At the Mather Field and Zinfandel interchanges, ramp widening is proposed for the EB off-ramp, the EB diamond on-ramp, the EB loop on-ramp and the WB loop on-ramp. At the Zinfandel Interchange, ramp widening is proposed for the EB off-ramp, the EB diamond on-ramp and the EB loop

on-ramp. Currently, the only additional right of way required for all alternatives is two small slivers of acquisitions from commercial properties for ramp widening at the Zinfandel Drive Interchange (Figures 2.1-1m and n). Alternative 10D-3 is approximately 7.0 miles in length.

- **No-Build Alternative**

The No-Build Alternative would not implement any of the improvements involved in the project. The No-Build Alternative would not meet the need and purpose of the project since it does not address mobility, or give commuters incentive to use buses or carpools during peak commute periods.

1.6.2 Alternatives Considered But Eliminated from Further Discussion

Caltrans approved Project Study Reports (PSR) for this project in January and February 1998. One PSR addressed operational improvements between 9th Street downtown Sacramento and Mayhew Road and the other between Mayhew Road and Prairie City Road. The PSR for the first segment developed six bus/carpool alternatives, varying in the locations of bus/carpool drop ramps in the downtown area. The PSR for the second segment developed 2 alternatives: one with 10 foot median shoulders, and one with 10 foot median shoulders through the interchanges and 14 foot median shoulders between interchanges. The 14-foot shoulder accommodated a continuous CHP enforcement area. With the 10-foot shoulder alternative, the median barrier would be offset to provide spot enforcement areas at 1.8 – 2.5 mile intervals.

A Supplemental PSR was developed and approved in August 2001. It combined the first segment and a portion of the second segment (Mayhew Road to Sunrise Blvd) for new study limits from 9th Street to Sunrise Boulevard. The Supplemental PSR carried forward the 6 alternatives from the first segment PSR while developing 9 additional alternatives. The 2 alternatives for the freeway between Mayhew Road and Sunrise Boulevard were also carried forward.

The PSR and Supplemental PSR alternatives were presented to the Technical Advisory Committee (TAC) during two separate meetings held in July and August of 2003. The TAC consisted of Caltrans staff as well as representatives from the City of Sacramento, County of Sacramento, Regional Transit (RT), and the Sacramento Area Council of Governments (SACOG). For each alternative, there was a general discussion of the pros and cons. The TAC was then polled for a consensus on recommending whether an alternative should be carried forward or set aside.

The alternatives were also presented to the Corridor Advisory Committee (CAC), which was organized for this project. The CAC was comprised of volunteer representatives from a broad range of neighborhood, business, and activist groups. The CAC was chartered to provide input regarding the impacts that the various proposed alternatives would have on the local community, as well as community enhancements throughout the project corridor. At one CAC meeting, all of the alternatives from the Supplemental PSR were presented. At future meetings, only the alternatives proposed by the TAC to be carried forward were presented. Members of the CAC discussed the merits of each of the alternatives and provided comments on the perceived impacts to the community. Their comments are documented in the CAC Final Report, which is available from Caltrans.

The results of the TAC and CAC meetings were the recommendation that 4 of the 15 approved build alternatives, and the no-build alternative, be carried forward for preliminary engineering studies and environmental analysis. The remaining 11 alternatives would be set aside.

1.6.2.1 Alternatives Considered But Eliminated as the Result of the Technical Studies

Alternative 5B

Alternative 5B was originally recommended by the TAC and CAC to be carried forward as a viable alternative. Alternative 5B proposed an EB bus/carpool drop on-ramp in the median at 10th Street and a WB bus/carpool drop off-ramp at 16th Street. In order to avoid a trap lane, the WB bus/carpool lane

would transition from the existing median east of the Oak Park Interchange to the existing No. 1 lane west of the Oak Park Interchange. A bus/carpool ramp lane would then be constructed in the median to transition to the drop ramp.

In order to avoid outside widening, the proposed EB drop on-ramp was raised above the existing elevated freeway section between Riverside Boulevard and 28th Street. Elevating the EB ramp provides space in the median to accommodate the WB drop ramp.

This alternative was expected to improve freeway operations in the downtown section of US 50 because the weaving would be reduced with bus/carpool drop ramps in both directions. Vehicles using the EB bus/carpool ramp would not be able to travel north on State Route (SR) 51 or south on SR 99 (Oak Park Interchange) as the ramp touches down past the connectors.

During the June 2005 public workshops, Alternative 5B was presented as one of the proposed alternatives carried forward for analysis in the environmental document. However, after the public workshops, in subsequent newspaper editorials and at city council meetings, Caltrans received many negative comments from members of the public, as well as from various public officials, regarding Alternative 5B. The alternative also had the potential for adverse visual, noise, and community impacts.

Although Alternative 5B was recommended by the TAC to be carried forward, it was later eliminated because of public controversy and potential environmental impacts.

Alternative 6B

Alternative 6B was originally recommended by the TAC and CAC to be carried forward as a viable alternative. Alternative 6B proposed an EB bus/carpool on-ramp at 10th Street and a WB bus/carpool off-ramp at 21st Street. In order to avoid a trap lane, the WB bus/carpool lane would transition from the existing median east of the Oak Park Interchange to the existing No. 1 lane west of the Oak Park Interchange. A bus/carpool ramp lane would then be constructed in the median to transition to the drop ramp.

This alternative required about 14 feet of widening on the outside of the EB lanes between about 19th Street and 25th Street so that the EB bus/carpool lane avoids the proposed WB bus/carpool off-ramp at 21st Street.

New structures for the EB and WB bus/carpool ramps were required. The EB bus/carpool on-ramp required minor modifications to the 10th Street Undercrossing and the Riverside Blvd Undercrossing. The WB bus/carpool off-ramp required minor modifications to the second half of the Camellia City Viaduct. The 15th-16th Street Separation, the first half of the Camellia City Viaduct, and the 26th Street Undercrossing would be decked in the median. The Camellia City Viaduct would also be widened on the north side of the WB structure. The WB on-ramp at 21st Street also required the permanent closure of 22nd Street to vehicular traffic.

Alternative 6B was dropped as a viable alternative for the following reasons:

- Alternative 6B would convert an existing mainline lane to a bus/carpool weave lane on the approach to the WB drop off-ramp at 21st Street. The Traffic Study concluded that the corresponding bottleneck caused by the loss of the mainline lane, negated the benefits of the bus/carpool drop ramp. Converting the existing WB mainline lane to accommodate the bus/carpool lane drop off-ramp severely affected traffic flow, reducing volumes and speeds.
- Alternative 6B is not compatible with the future bus/carpool lane connector projects at the I-5 and SR 99/I-80 interchanges because the design features of Alternative 6B (location of columns, design of drop off- and on-ramps) may conflict with the bus/carpool connectors.

- Potential change in neighborhood traffic patterns on adjacent surface streets along the W – X portion of the freeway.
- Potential conflict with bicyclists at the drop off-ramp.
- As of November 2006, the estimated cost of constructing Alternative 6B was approximately \$208 million. The Sacramento Transportation Authority, however, has authorized \$200 million for the project. It is anticipated that material and construction cost will continue to escalate. This alternative cannot be constructed as funded.

Alternative 7B

Alternative 7B was originally recommended by the TAC and CAC to be carried forward as a viable alternative. Alternative 7B proposed an EB bus/carpool on-ramp at 21st Street and a WB bus/carpool off-ramp at Riverside Boulevard. In order to avoid a trap lane, the WB bus/carpool lane would transition from the existing median east of the Oak Park Interchange to the existing No. 1 lane west of the Oak Park Interchange. A bus/carpool ramp lane would then be constructed in the median to transition to the drop ramp.

New structures for the proposed EB and WB bus/carpool ramps were required. The WB bus/carpool off-ramp required minor modifications to the Riverside Blvd Undercrossing. The EB bus/carpool on-ramp required minor modifications to the Camellia City Viaduct. The remaining portions of the viaduct, the 15th-16th Street Separation, and the 26th Street Undercrossing would be decked in the median. Unlike Alt. 6B, Alt. 7B would not require the closure of 22nd Street to vehicular traffic.

Alternative 7B was dropped as a viable alternative for the following reasons:

- Similar to Alternative 6B, Alternative 7B would convert an existing mainline lane to a bus/carpool weave lane on the approach to the WB drop off-ramp, this time at Riverside Boulevard/11th Street. The Traffic Study concluded that the corresponding bottleneck caused by the loss of the mainline lane, negated the benefits of the bus/carpool drop ramp. Converting the existing WB mainline lane to accommodate the bus/carpool lane drop off-ramp severely affected traffic flow, reducing volumes and speeds.
- Alternative 7B is not compatible with the future bus/carpool lane connector projects at the I-5 and SR 99/I-80 interchanges because the design features of Alternative 7B (location of columns, design of drop off- and on-ramps) may conflict with the bus/carpool connectors.
- Potential change in neighborhood traffic patterns on adjacent surface streets along the W – X portion of the freeway.
- Potential conflict with bicyclists at the drop off-ramp.
- As of November 2006, the estimated cost of construction Alternative 7B is approximately \$206 million. The Sacramento Transportation Authority, however, has authorized \$200 million for the project. It is anticipated that material and construction cost will continue to escalate. This alternative cannot be constructed as funded.

Alternative 10D

Alternative 10D was originally recommended by the TAC and CAC to be carried forward as a viable alternative. Alternative 10D involved constructing bus/carpool lanes in the median without drop ramps. The bus/carpool lanes would begin east of the 9th Street Undercrossing. The following downtown structures would require widening in the median: 10th Street Undercrossing, Riverside Blvd Undercrossing, 15th-16th Street Separation, the Camellia City Viaduct, and the 26th Street Undercrossing.

Alternative 10D was dropped as a viable alternative for the following reasons:

- Alternative 10D would exacerbate the weave condition on the WB W/X section of US 50. According to the Traffic Study, Alternative 10D performed worse than other bus/carpool

alternatives because buses and carpool vehicles would be forced to use the existing off-ramps, mixing with other vehicles in the non-bus/carpool lanes.

- As of November 2006, the estimated cost of construction Alternative 10D is approximately \$193 million. The Sacramento Transportation Authority, however, has authorized \$200 million for the project. Anticipated escalations in material and construction costs are expected to result in project costs exceeding \$200 million. This alternative cannot be constructed as funded.

Alternative 10D-2

Alternative 10D-2 included bus/carpool lanes in the median from Sunrise Boulevard to Howe Avenue. The bus/carpool lane would convert into the existing No. 1 lane at Howe Avenue and all lanes would shift to the right and connect to the existing option trap lane to Howe Avenue. The project would end at this point and no work would be done west of this location.

Alternative 10D-2 was dropped as a viable alternative for the following reasons:

- Ending the WB lane at this location would create a double trap lane, where a single trap lane existed previously. A double trap condition can cause significant weaving congestion. Therefore, Alternative 10D-2 is not recommended.

1.6.2.2 Alternatives Considered But Eliminated as a Result of the TAC and CAC Process

Alternative 5B Modified

Alternative 5B Modified was a revised version of Alternative 5B (see Section 1.6.2.1), proposing a westbound (WB) bus/carpool drop off-ramp at 16th Street downtown. No EB bus/carpool drop on-ramp was proposed; the EB bus/carpool lane would begin about 21st Street. In order to avoid a trap lane, the WB bus/carpool lane would transition from the existing median east of the Oak Park Interchange to the existing No. 1 lane west of the Oak Park Interchange. A bus/carpool ramp lane would then be constructed in the median to transition to the drop ramp.

This alternative was expected to improve freeway operations in the WB direction of the downtown section of US 50 because the weaving would be reduced with the bus/carpool drop off-ramp. There would potentially be a change to the EB weave. Vehicles would enter the freeway using existing mixed flow ramps. Vehicles intending to use the bus/carpool lane would be expected to try to enter the bus/carpool lane as soon as possible, potentially exacerbating the existing weave.

Alternative 5B Modified was eliminated because an alternative that provided a WB bus/carpool drop off-ramp without an EB bus/carpool drop on-ramp is unbalanced. It was an efficient way for bus/carpool traffic to get downtown, but not out of downtown.

Alternative 6B Modified

Alternative 6B Modified was a revised version of Alternative 6B, proposing a WB bus/carpool drop off-ramp at 21st Street. No eastbound bus/carpool drop on-ramp was proposed; the EB bus/carpool lane would begin about 26th Street. In order to avoid a trap lane, the WB bus/carpool lane would transition from the existing median east of the Oak Park Interchange to the existing No. 1 lane west of the Oak Park Interchange. A bus/carpool ramp lane would then be constructed in the median to transition to the drop ramp.

This alternative was expected to improve freeway operations in the WB direction of the downtown section of US 50 because the weaving would be reduced with the bus/carpool drop off-ramp. There would potentially be a change to the EB weave. Vehicles would enter the freeway using existing mixed flow ramps. Vehicles intending to use the bus/carpool lane would be expected to try to enter the bus/carpool lane as soon as possible, potentially exacerbating the weaving.

Alternative 6B Modified was set aside because an alternative that provided a WB bus/carpool drop off-ramp without an EB bus/carpool drop on-ramp is unbalanced. It was an efficient way for bus/carpool traffic to get downtown, but not out of downtown.

Alternative 7B Modified

Alternative 7B Modified was a revised version of Alternative 7B, proposing a WB bus/carpool drop off-ramp at Riverside Boulevard. No eastbound bus/carpool drop on-ramp was proposed; the EB bus/carpool lane would begin about 25th Street. In order to avoid a trap lane, the WB bus/carpool lane would transition from the existing median east of the Oak Park Interchange to the existing No. 1 lane west of the Oak Park Interchange. A bus/carpool ramp lane would then be constructed in the median to transition to the drop ramp.

This alternative was expected to improve freeway operations in the WB direction of the downtown section of US 50 because the weaving would be reduced with the bus/carpool drop off-ramp. There would potentially be a change to the EB weave. Vehicles would enter the freeway using existing mixed flow ramps. Vehicles intending to use the bus/carpool lane would be expected to try to enter the bus/carpool lane as soon as possible, potentially exacerbating the weaving.

Alternative 7B Modified was set aside because an alternative that provided a WB bus/carpool drop off-ramp without an EB bus/carpool drop on-ramp is unbalanced. Alternative 7B provided an efficient way for bus/carpool traffic to get downtown, but not out of downtown.

Alternative 10

Alternative 10 proposed to construct bus/carpool lanes in the median without drop ramps. The bus/carpool lanes would begin east of the 10th Street Undercrossing. This alternative was very similar to Alternative 10D, but did not go as far to the west. Alternative 10 was set aside in favor of Alternative 10D.

Alternative 7B-10

Alternative 7B-10 was a hybrid of Alternatives 7B and 10. The alternative proposed a WB bus/carpool drop off-ramp at Riverside Boulevard. No eastbound bus/carpool drop on-ramp was included; the EB bus/carpool lane would begin about 16th Street. In order to avoid a trap lane, the WB bus/carpool lane would transition from the existing median east of the Oak Park Interchange to the existing No. 1 lane west of the Oak Park Interchange. A bus/carpool ramp lane would then be constructed in the median to transition to the drop ramp.

This alternative was expected to improve freeway operations in the WB direction of the downtown section of US 50 because the weaving would be reduced with the bus/carpool drop off-ramp.

Alternative 7B-10 was set aside because an alternative that provided a WB bus/carpool drop off-ramp without an EB bus/carpool drop on-ramp is unbalanced. Alternative 7B-10 presented an efficient way for bus/carpool traffic to get downtown, but not out of downtown.

Alternative Minimum Project

Alternative Minimum Project proposed to end the bus/carpool lanes in the median prior to downtown. The bus/carpool lanes would begin east of the 26th Street Undercrossing.

This alternative was expected to have no impact or a slight degradation to freeway operations in the downtown section of US 50. As the bus/carpool lane ends, WB drivers would have to decide when to begin weaving in order to exit at their desired location, as they currently do. The bus/carpool lane would potentially encourage drivers to stay in the bus/carpool lane for as long as possible before weaving. Other drivers, leery of the weave, would chose to exit the bus/carpool lanes earlier, potentially reducing the operational effectiveness of the bus/carpool lane.

The improvements proposed with Alternative Minimum Project are already covered under Alternative 10D-1.

Alternative 10A

Alternative 10A was a refinement of Alternative Minimum Project. This alternative also proposed to end the bus/carpool lanes in the median prior to downtown. The bus/carpool lanes would begin east of the 26th Street Undercrossing. As the WB bus/carpool lane ends by transition the lane into the existing No. 1 mixed flow lane, the outside mixed flow lane becomes an exit only lane. Alternative 10A recommended that the outside mixed flow lane become an exit only at the connector to southbound State Route 99. The only difference between Alternative 10A and Alternative Minimum Project was that 10A specified where the mandatory exit takes place.

Alternative 10B

Alternative 10B was a refinement of Alternative Minimum Project. This alternative proposed to end the bus/carpool lanes in the median prior to downtown. The bus/carpool lanes would begin east of the 26th Street Undercrossing. As the WB bus/carpool lane ends by transition the lane into the existing No. 1 mixed flow lane, the outside mixed flow lane becomes an exit only lane. Alternative 10B proposed that the outside mixed flow lane become an exit only at the W Street off-ramp that terminates at the W/26th Street intersection. The only difference between Alternative 10B and Alternative Minimum Project was that 10B specified where the mandatory exit takes place.

Alternative 10C

Alternative 10C proposed to construct bus/carpool lanes in the median without drop ramps. The bus/carpool lanes would begin east of Riverside Boulevard. This alternative was expected to have no impact or a slight degradation to freeway operations in the downtown section of US 50. WB drivers would have to decide when to begin weaving in order to exit at their desired location, as they currently do. The bus/carpool lane would potentially encourage drivers to stay in the bus/carpool lane for as long as possible before weaving. Other drivers, leery of the weave, would chose to exit the bus/carpool lanes earlier, potentially reducing the operational effectiveness of the bus/carpool lane.

Alternative 10C was very similar to Alternative 10D, but didn't extend as far to the west. Alternative 10C was set aside in favor of Alternative 10D.

Alternative 13

Alternative 13 involved construction of bus/carpool drop ramps at Alhambra Boulevard, just east of the downtown section. The EB bus/carpool lane would begin with the ramp; the WB bus/carpool lane would transition out of the median around Stockton Boulevard to avoid a trap lane.

This alternative spawned two refinements that were presented to the TAC. An alternative to provide only a WB bus/carpool drop off-ramp (Alternative 13 Modified), and an alternative that would drop the outside mixed flow lane prior to Stockton Boulevard (Alternative 13B) were developed. The proposed profile of the drop ramps provided very smooth transitions onto the mainline highway.

This alternative was expected to have an improvement to freeway operations in the downtown section of US 50 by diverting some vehicles that currently enter/exit the freeway in the W-X Section to the Alhambra bus/carpool drop ramp.

There was as wide range of discussion on this alternative. Adding ramps at a new location was expected to have adverse impacts to local circulation. An extensive traffic study, including an Origin-Destination Study, would be needed to fully evaluate the traffic pattern changes. Whether these changes would improve or degrade circulation was a critical point of discussion. Ultimately, the TAC agreed that the studies required to fully evaluate the changes to local street traffic circulation patterns would greatly exceed a reasonable level of effort. As a result, Alternative 13 was set aside.

1.6.2.3 Other Alternatives Considered But Eliminated

A number of other transportation alternatives were analyzed as part of other studies. These alternatives are described below.

US 50 Corridor Major Investment Study

In 1996, SACOG, in collaboration with Regional Transit, Caltrans, the Sacramento Metropolitan Air Quality Management District, and other cities and counties along the corridor, completed the US 50 Corridor Major Investment Study (MIS). The purpose was to consolidate all of the planning efforts and decide on a corridor-wide investment strategy, focusing on phasing major improvements within a 20-year period. As part of the study, alternatives were considered, but not chosen for future study (SACOG 1996; DKS Associates 1995). Below is a description of those alternatives.

Single-Direction or Reversible High Occupancy Vehicle (HOV) Lane Alternative

The cost of building one additional median HOV lane was 70 to 80% of the cost of building bi-directional HOV lanes. The Major Investment Study Technical Advisory Committee rejected this alternative as not being cost-effective. It was also rejected because of the expected future growing bi-directional commute in the corridor (traffic in both directions during AM and PM peak commutes), a trend detailed in the Traffic Study for the US 50 bus/carpool lane project.

Transit-Only Alternative

In 1993, SACOG initiated the HOV – US 50 Corridor Study in order to determine the optimum phasing strategy for light rail and HOV lanes rather than a transit-only alternative. The assumption of the HOV – US 50 corridor study was that both light rail extensions and HOV lanes were necessary to alleviate congestion in the corridor as well as increase mobility through more travel options. This assumption was justified as a result of the analysis; a multi-modal strategy was seen as the best strategy to alleviate congestion and improve accessibility in the US 50 corridor. Four phasing approaches (A, B, C, and D) were therefore designed to be multi-modal (SACOG 1996).

Sac 50 Bus/Carpool Lanes Traffic Report (2006)

Several alternatives were analyzed as part of the 2006 Traffic Report completed for the project (a copy of the traffic study is available from Caltrans):

Mixed Flow Alternative

The mixed flow lane comparison involved construction of an additional mainline lane in the median between the project limits. This additional lane would be unrestricted, but would require special treatment in the eastbound direction at the connection to the existing bus/carpool lane at the Sunrise Boulevard Interchange. The added mixed flow lane cannot connect directly to the existing bus/carpool lane at this location. Excessive violations, confusion, and unsafe lane changes would result. The existing eastbound bus/carpool lane at Sunrise Blvd Interchange must be accessed by a lane change at the start of the bus/carpool lane. This requires a lane shift of the mixed flow lanes to the right, thus creating an undesirable lane configuration and would increase congestion at this location. The traffic model also showed that all bus/carpool alternatives carried more people than the mixed flow and no-build alternatives in design years 2020 and 2030.

From the beginning of the project's planning, SACOG proposed it as a bus/carpool lane project, as discussed in Section 1.9. The 2005/07 SACOG MTIP identified bus/carpool lane alternatives for US 50. Projects included in the MTIP are consistent with SACOG's Metropolitan Transportation Plan and are part of the area's overall strategy for providing mobility, congestion relief and reduction of transportation-related air pollution in support of efforts to attain federal air quality standards for the region.

Furthermore, the Measure A Half-Cent Sales Tax on the Sacramento County 2004 ballot included carpool lane projects, not mixed-flow alternatives.

Full Bus/Carpool Conversion Alternative (Take a Lane)

The study found that this alternative was the poorest performer of all alternatives studied; highest level of congestion, lowest average speeds, and lowest throughput volumes. Throughput is the number of vehicles passing a given point during a given period of time. For these reasons, no further analysis was conducted on this alternative.

Partial Bus/Carpool Conversion Alternative

The partial bus/carpool conversion alternative involves adding bus/carpool lanes between Sunrise Boulevard and the 50/99/51 Interchange, and then converting the existing median lane to bus/carpool use from that point to east of I-5. Queuing and congestion occurred in the traffic model starting at the W-X section and backed up to Howe Avenue, due to the bottleneck effects on the W-X section of US 50. This is because capacity was reduced by the bus/carpool conversion on the W-X section. The partial bus/carpool conversion option and the full conversion option performed worse than all of the bus/carpool build alternatives.

In general, conversion of existing lanes to bus/carpool use is only advisable when the lane usage is relatively light before the conversion. This section of US 50 experiences very high levels of traffic during the commute periods, therefore, the full bus/carpool lane conversion and the partial bus/carpool conversion scenarios are not recommended.

High Occupancy Toll (HOT) Lane

Dowling Associates prepared an evaluation of the cost-effectiveness of converting a bus/carpool lane to a high occupancy toll (HOT) lane. The study concluded that the HOT lane concept for this project was not cost-effective for the following reasons:

- Projected congestion in the US 50 corridor through 2030 will not be great enough to generate toll rates and revenues necessary to generate a positive cost/benefit ratio.
- The HOT lane has a limited number of access points (necessary for toll collection and enforcement purposes). Bus/carpools have more freedom to switch to the HOV lane. But with the limited number of access points for the HOT lane, a number of bus/carpools are forced to use the general-purpose lanes. These bus/carpools experience increased time costs, and cause more congestion in the general-purpose lanes (Dowling 2006).

Other Alternatives

Barrier-Separated or Buffer-Separated Bus/Carpool Lanes

Alternatives to separate the bus/carpool lane from the adjacent mixed flow lanes, either with a striped buffer or a concrete barrier, were considered and rejected. These alternatives would require extensive outside widening (requiring excessive costs) or taking an existing mixed flow lane, substantially reducing operational capacity. Access to the bus/carpool lanes would only be at ingress/egress points located along the corridor.

Reversible Bus/Carpool Lane

Constructing a reversible bus/carpool lane was considered and rejected. The cost would have been almost the same as constructing a bus/carpool lane in each direction. The reversible lane would limit the ingress/egress points and require continuous maintenance of the lane switching mechanism. The directional split between commute directions would not conducive to a reversible lane.

1.7 COMMUNITY ENHANCEMENT

Community enhancements (elements proposed to improve the street system adjacent to US 50 to enhance neighborhood livability) were originally identified during the citizen advisory committee (CAC)

meetings in 2003. In January 2006, the City of Sacramento, the City of Rancho Cordova, and Sacramento County were requested to submit a list of community enhancements they would like included within their jurisdiction. Specific suggestions include sound walls (beyond those proposed), landscape improvements, and pedestrian/bicycle improvements.

In June 2006, Caltrans informed the cities of Sacramento and Rancho Cordova and Sacramento County of the following:

- A maximum of \$15 million might be available for community enhancements.
- This amount would be divided based upon the proportional length of the project within each jurisdiction.
- The proportion would be determined once the final project alternative is approved.

1.8 PROJECT SCHEDULE

The current project schedule is as follows:

- Circulate Draft EIR/EA: December 2006 – February 2007
- Final EIR/EA: August 2007
- Begin Construction: December 2009
- End Construction: December 2014

1.9 PROJECT BACKGROUND AND HISTORY

The project has been included in various studies, plans, and programs since 1990. These include:

- Metro Study (Sacramento Council of Governments (SACOG))
 - 1989 study that recommended a regional HOV lane study (see next bullet).
- High Occupancy Vehicle System Planning Study for the Sacramento Metro Area
 - SACOG study in 1990 recommending HOV lanes on US 50 between downtown Sacramento and Shingle Springs.
- Evaluation of Impact of HOV Lanes on Other Transportation Programs
 - Initiated by SACOG in 1993 to determine the optimum phasing strategy for HOV lanes in the US 50 corridor. The study also evaluated whether or not light rail extensions and HOV lanes compete for the same travelers on the corridor. The study became the core of the US 50 Corridor Major Investment Study (see below).
- Measure A Strategic Plan Update
 - 1995 study by the Sacramento Transportation Authority that listed projects in rank order for funding priority by using Measure A transportation sales tax funding. US 50 HOV projects were ranked 2, 12, and 15 (out of 26 state highway improvement projects).
- Metropolitan Transportation Plan (MTP), 1996 Update
 - Updated by SACOG in 1996, the MTP included HOV lanes from 15th/16th Streets downtown to Silva Valley Parkway. It also included exclusive carpool ramps at 15th/16th Streets.
- Major Investment Study (MIS)

- The MIS was produced by SACOG after a four-year regional discussion and consensus building process that involved various local agencies and the public.
 - The MIS included a number of initiatives designed to maintain mobility and provide travel choices along US Highway 50. The addition of HOV lanes between Sacramento and El Dorado Hills was one of the initiatives.
 - The SACOG Board adopted the MIS in December 1997.
- Metropolitan Transportation Improvement Program (MTIP)
 - The program includes a listing of all transportation-related projects requiring federal funding or other approval by the federal transportation agencies.
 - The HOV project was included in the Final 2003/2005 MTIP.
- Metropolitan Transportation Plan 2025 (MTP)
 - The MTP, adopted in 2002, is a 23-year plan for transportation improvements in a six-county region (El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba).
 - The HOV project is included in the list of Sacramento County (Tier 1: Publicly-Funded).
- State Transportation Improvement Program 2002 (STIP)
 - Selected projects are incorporated into the Regional Transportation Improvement Program (RTIP) that SACOG forwards to the California Transportation Commission for inclusion in the STIP. The STIP covers a five-year period and is updated every two years.
 - The project is included in the list of projects in the 2002 STIP.
- Measure A Half-Cent Sales Tax, Sacramento County 2004
 - The Measure A Half-Cent sales tax extended an existing half-cent from 2009 to 2030.
 - The HOV project was listed under Freeway Safety and Congestion Relief Program, Regional Bus/Carpool Lane Connectors/Extensions in the 2004 election ballot. All projects included on the ballot are also included in the 2025 MTP.
 - According to Sacramento County Registrar of Voters, countywide, the measure passed with approximately 75% approval by voters. A more detailed approval breakdown is as follows:

▪ City of Sacramento	76%
▪ City of Rancho Cordova	78%
▪ City of Folsom:	76%
▪ Unincorporated Sacramento County	74%
- Sacramento Region Blueprint
 - Joint effort of SACOG and Valley Vision.
 - SACOG conducted two years of study and public involvement, resulting in the adoption the Blueprint's Preferred Blueprint Scenario in December 2004. The Blueprint scenario adopted became part of SACOG's Metropolitan Transportation Plan update for 2005, a formal document that serves as a long-range transportation plan for the six-county region. It also will serve as a framework to guide local government in growth and transportation planning through 2050.
- California Transportation Plan 2025
 - The California Transportation Plan 2025 is a blueprint for meeting the State's future transportation needs.
 - Specific policies and strategies include completing the HOV network and maximizing the use of HOV lanes by encouraging transit operators to provide express bus service on HOV lanes.

- Proposition 1B, California State Propositions 2006
 - The proposition directs the State of California to sell \$19.9 billion in general obligation bonds to fund state and local transportation and safety projects, including completing the state's network of carpool lanes.
 - The bus/carpool project was one of the projects listed in the proposition.
 - Statewide, according to the Secretary of State's office, Proposition 1B passed with approximately 61% approval by voters. In Sacramento County, voters approved Proposition 1B by 62%.

1.10 PERMITS AND APPROVALS NEEDED

The following permits, reviews, and approvals would be required for project construction:

Agency	Permit/Approval	Status
California Water Resources Control Board	Statewide National Pollutant Discharge Elimination System (NPDES) Permit	Statewide permit obtained in 1999.

The City of Sacramento, Sacramento County, State Office of Historic Preservation, and Central Valley Regional Water Quality Control Board are designated as responsible agencies. The California Department of Fish and Game is the trustee agency.

Table 1-1. US 50 Daily Traffic Volumes

Segment			
From	To	Existing (2004)	Year 2030
I-5	10 th Street	222,000	349,000
10 th Street	16 th Street	231,000	363,100
16 th Street	SR 51 – SR 99	254,000	399,300
SR 51 – SR 99	Stockton Blvd.	224,000	363,800
Stockton Blvd.	59 th Street	215,000	349,200
59 th Street	65 th Street	200,000	324,800
65 th Street	Howe Ave.	205,000	332,900
Howe Ave.	Watt Ave.	183,000	297,200
Watt Ave.	Bradshaw Road	184,000	298,800
Bradshaw Road	Mather Field Road	180,000	292,300
Mather Field Road	Zinfandel Drive	169,000	278,900
Zinfandel Drive	Sunrise Blvd.	149,000	245,900
Sunrise Blvd.	Hazel Ave.	127,000	222,800

Source: Caltrans Office of Travel Forecasting & Modeling, 2006.

Table 1-2. Mainline Level of Service (LOS), Existing Conditions (Year 2005)

Segment	Westbound A.M. Peak Hour		Eastbound P.M. Peak Hour	
	Volume	LOS	Volume	LOS
Sunrise Blvd. to Zinfandel Ave.	6,100	F	6,200	F
Zinfandel Ave. to Mather Field Road	6,300	F	6,400	F
Mather Field Road to Bradshaw Road	6,500	F	6,500	F
Bradshaw Road to Watt Ave.	7,000	F	6,800	F
Watt Ave. to Howe Ave.	7,900	F	6,700	F
Howe Ave. to 65 th Street	7,300	F	7,300	F
59 th Street to Stockton Blvd.	7,600	F	7,400	F
W & X Couplet	7,100	F	7,000	F

Source: Traffic Study Report, District 3 – Traffic Operations, 2006

Table 1-3. Mainline Level of Service (LOS), Year 2030 Constrained Volumes

Segment	Westbound A.M. Peak Hour		Eastbound P.M. Peak Hour	
	Volume	LOS	Volume	LOS
Sunrise Blvd. to Zinfandel Ave.	6,400	F	5,900	F
Zinfandel Ave. to Mather Field Road	7,000	F	6,000	F
Mather Field Road to Bradshaw Road	7,600	F	6,800	F
Bradshaw Road to Watt Ave.	7,700	F	6,400	F
Watt Ave. to Howe Ave.	7,600	F	6,800	F
Howe Ave. to 65 th Street	6,400	F	7,300	F
59 th Street to Stockton Blvd.	7,000	F	7,100	F
W & X Couplet	6,900	F	7,000	F

Source: Traffic Study Report, District 3 – Traffic Operations, 2006

Table 1-4. Accident Rate Summary (7-1-02 to 6-30-05)

Location	Actual Accident Rate (accidents/mvm*) 7/1/02 to 6/30/05			Average Accident Rate (accidents/mvm*)		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
Oak Park Interchange to Sunrise Blvd	0.002	0.29	1.08	0.005	0.29	0.91

Source: Caltrans District 3 Office of Freeway Operations, July 2006.

* Million vehicle miles

Table 1-5. Summary of Alternatives

Alternative	Length (miles)	Western Limit	Proposed Sound Walls	Mainline Widening	Structures Widened	New Right of Way	Total Cost
10D-1	12.8	26th Street	WB2, WB4, WB5, WB6, WB7, WB8, WB9, EB9, EB11A, EB11B, EB12	Inside widening from Stockton Blvd. to Bradshaw Road Outside widening from Bradshaw Road to Sunrise Blvd.	Elmhurst Viaduct Brighton OH Folsom Blvd. UC State College UC West Citrus OH*	Small slivers of commercial property along Zinfandel Drive EB off- and on-ramps	\$161 million
10D-3	7	Watt Ave.	WB4, WB5, WB6, WB7, WB8, WB9, EB9, EB11A, EB11B, EB12	Inside widening from Watt Ave. to Bradshaw Road Outside widening from Bradshaw Road to Sunrise Blvd.	West Citrus OH*	Small slivers of commercial property along Zinfandel Drive EB off- and on-ramps	\$127 million
No-Build	NA	NA	None	None	None	None	NA

* Widening to the inside

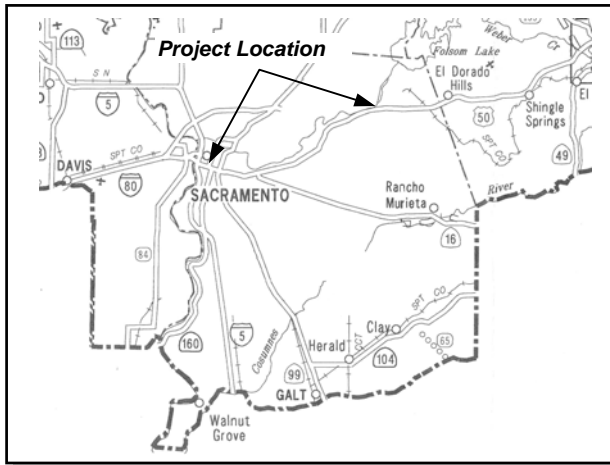
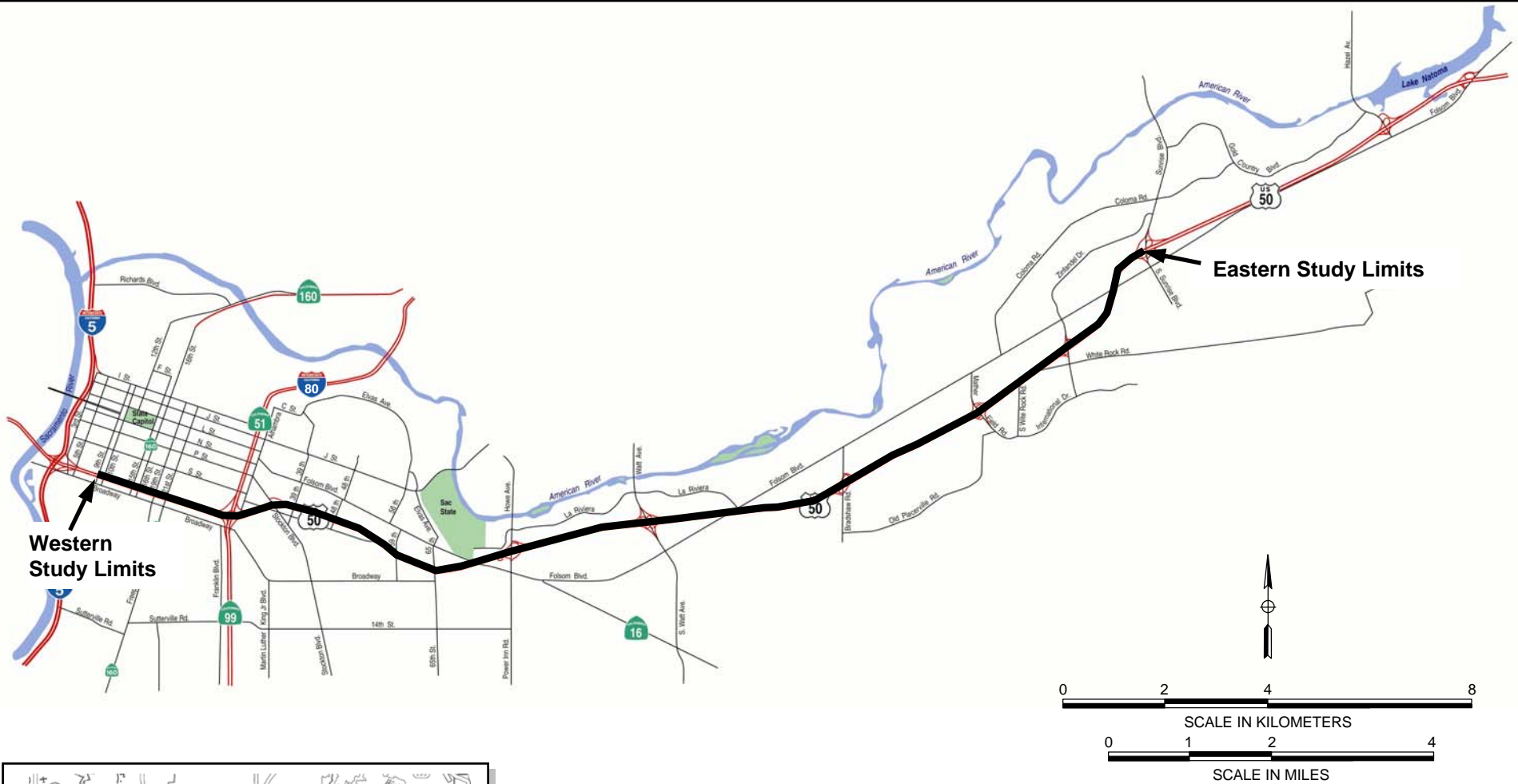


FIGURE 1-1
Project Location

03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
EA 03-44161

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Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. No delays
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. No delays
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. Minimal delays
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. Minimal delays
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. Significant delays
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. Considerable delays

FIGURE 1-2

Levels of Service (LOS) for Freeways

03-Sac-50

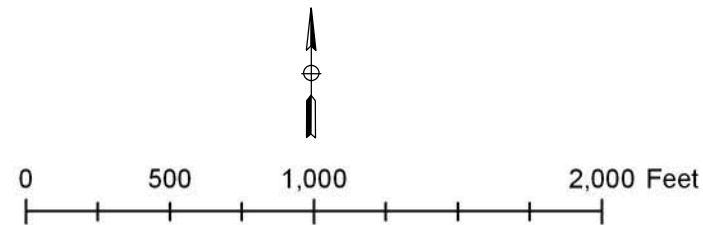
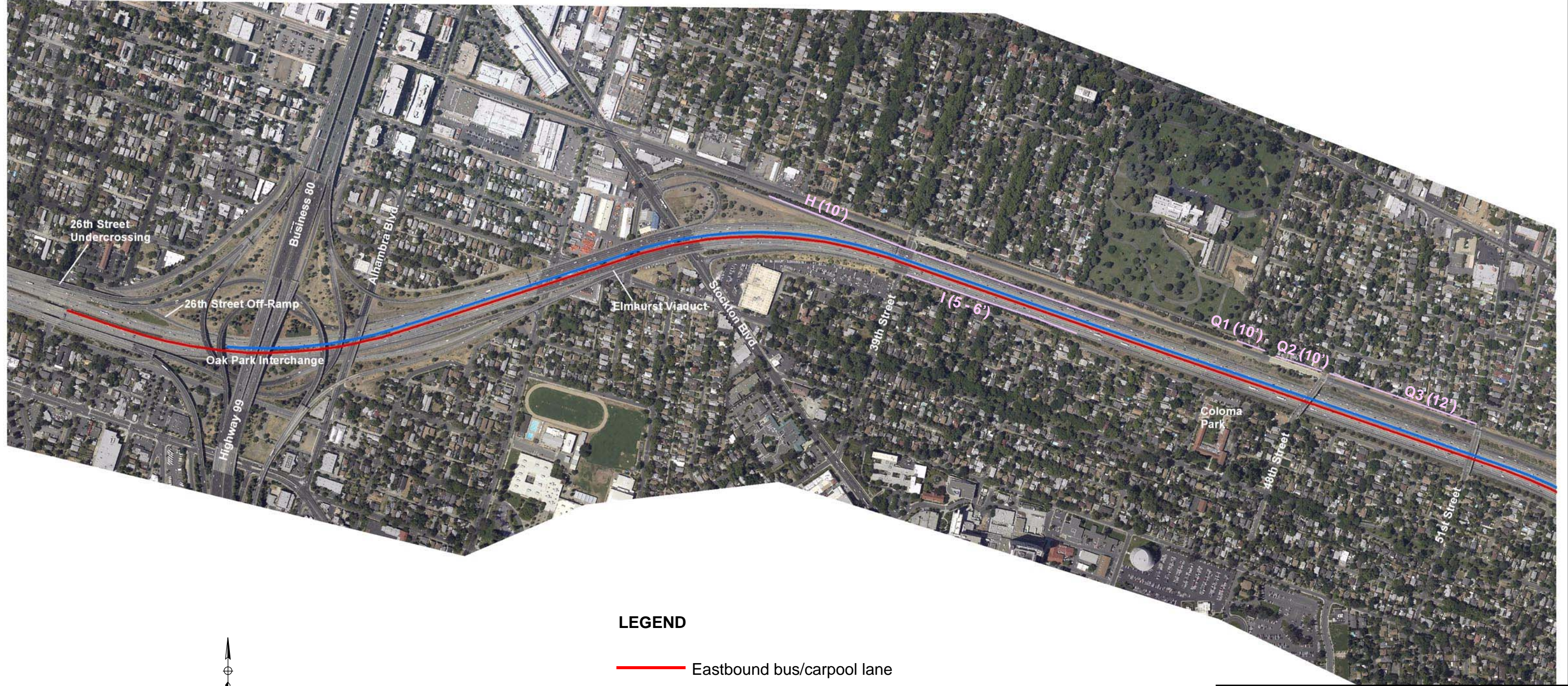
Sac 50 Bus/Carpool Lanes Project

PM L0.9 / 12.8 (KP L1.4 / 20.6)

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LEGEND

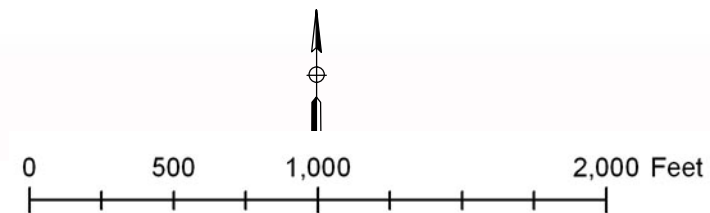
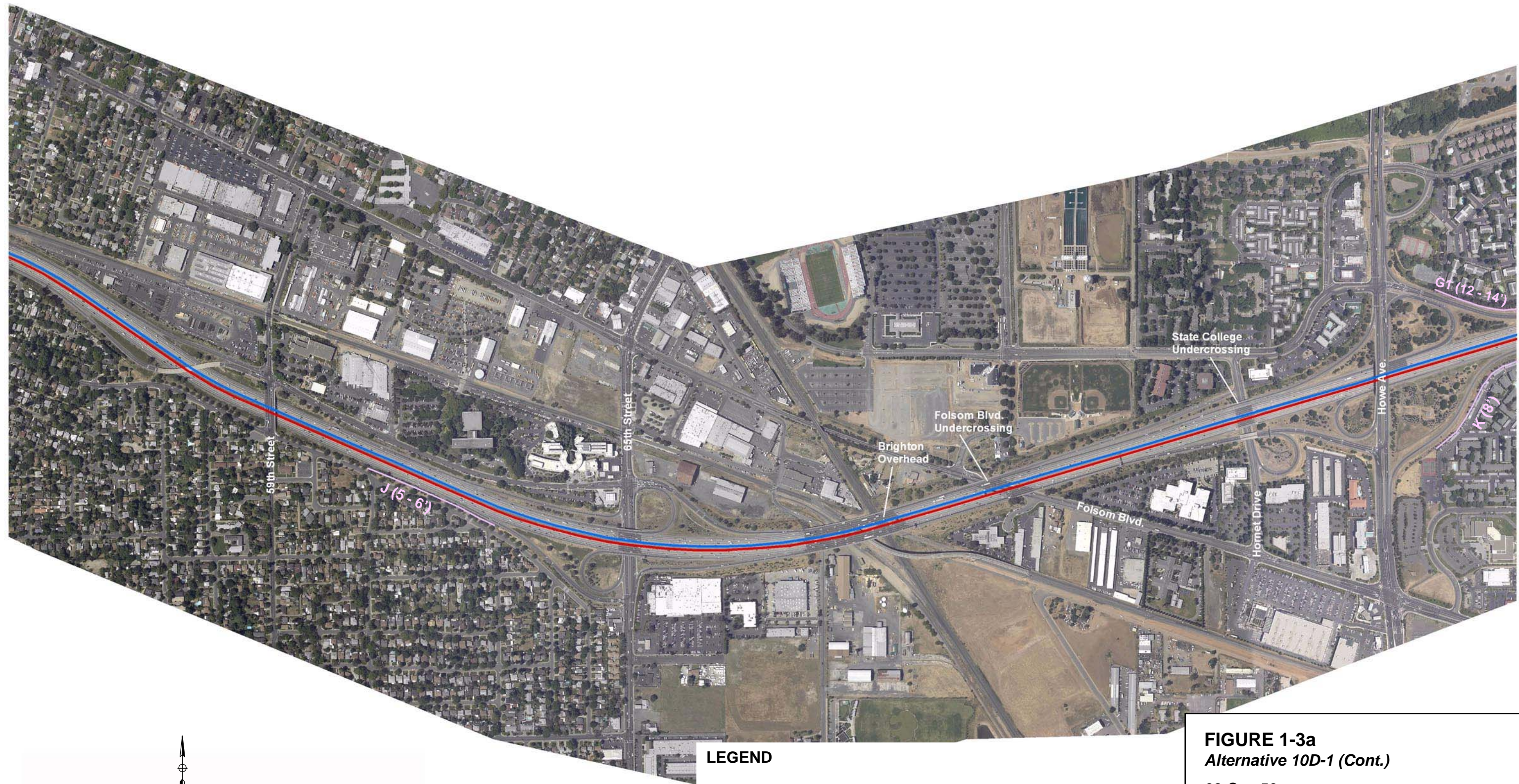
- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height

FIGURE 1-3a
Alternative 10D-1

03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
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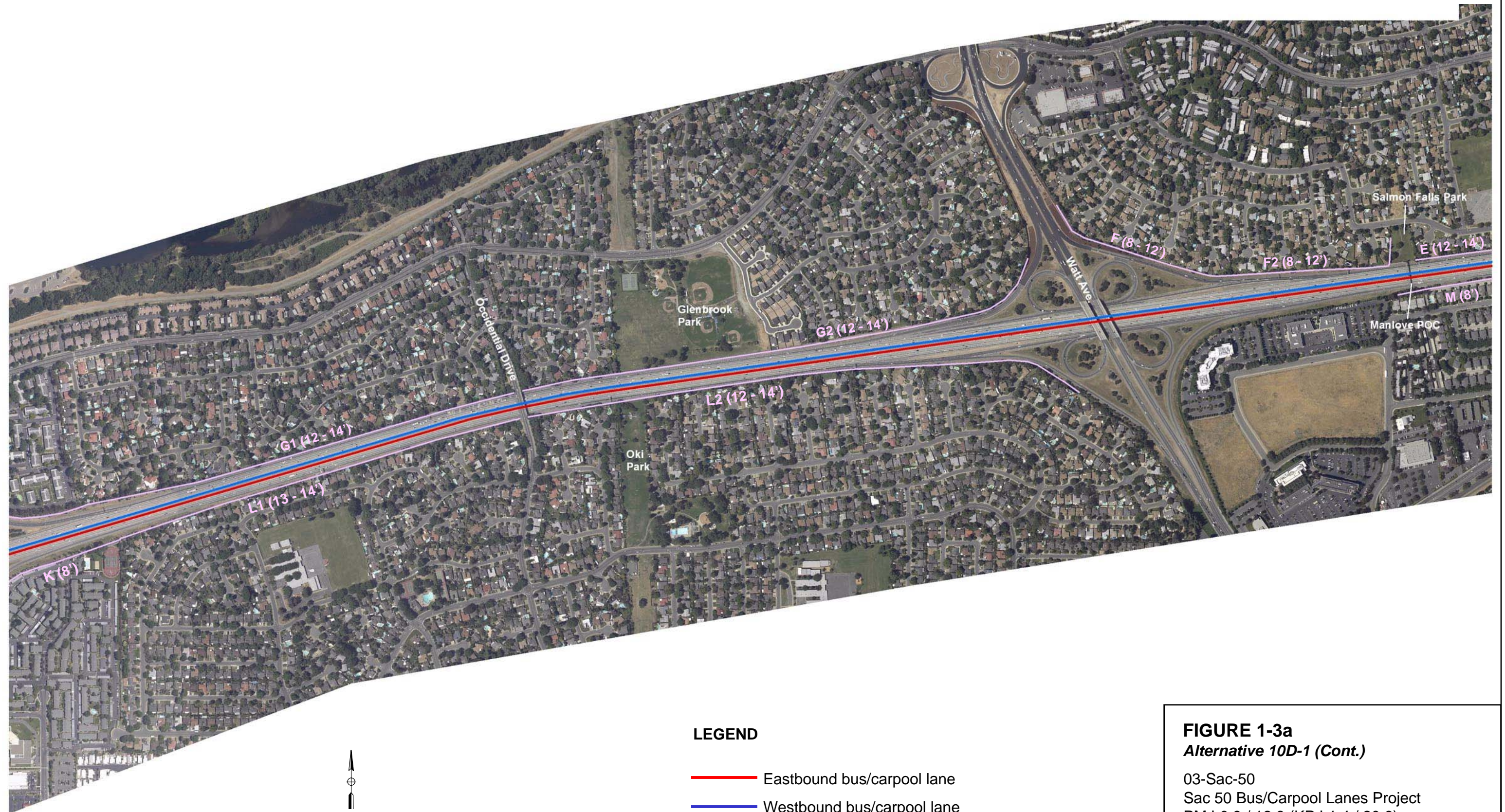




LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height

FIGURE 1-3a
Alternative 10D-1 (Cont.)
 03-Sac-50
 Sac 50 Bus/Carpool Lanes Project
 PM L0.9 / 12.8 (KP L1.4 / 20.6)
 EA 03-44161



LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height

FIGURE 1-3a
Alternative 10D-1 (Cont.)

03-Sac-50
 Sac 50 Bus/Carpool Lanes Project
 PM L0.9 / 12.8 (KP L1.4 / 20.6)
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LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height



FIGURE 1-3a
Alternative 10D-1 (Cont.)

03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
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LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height

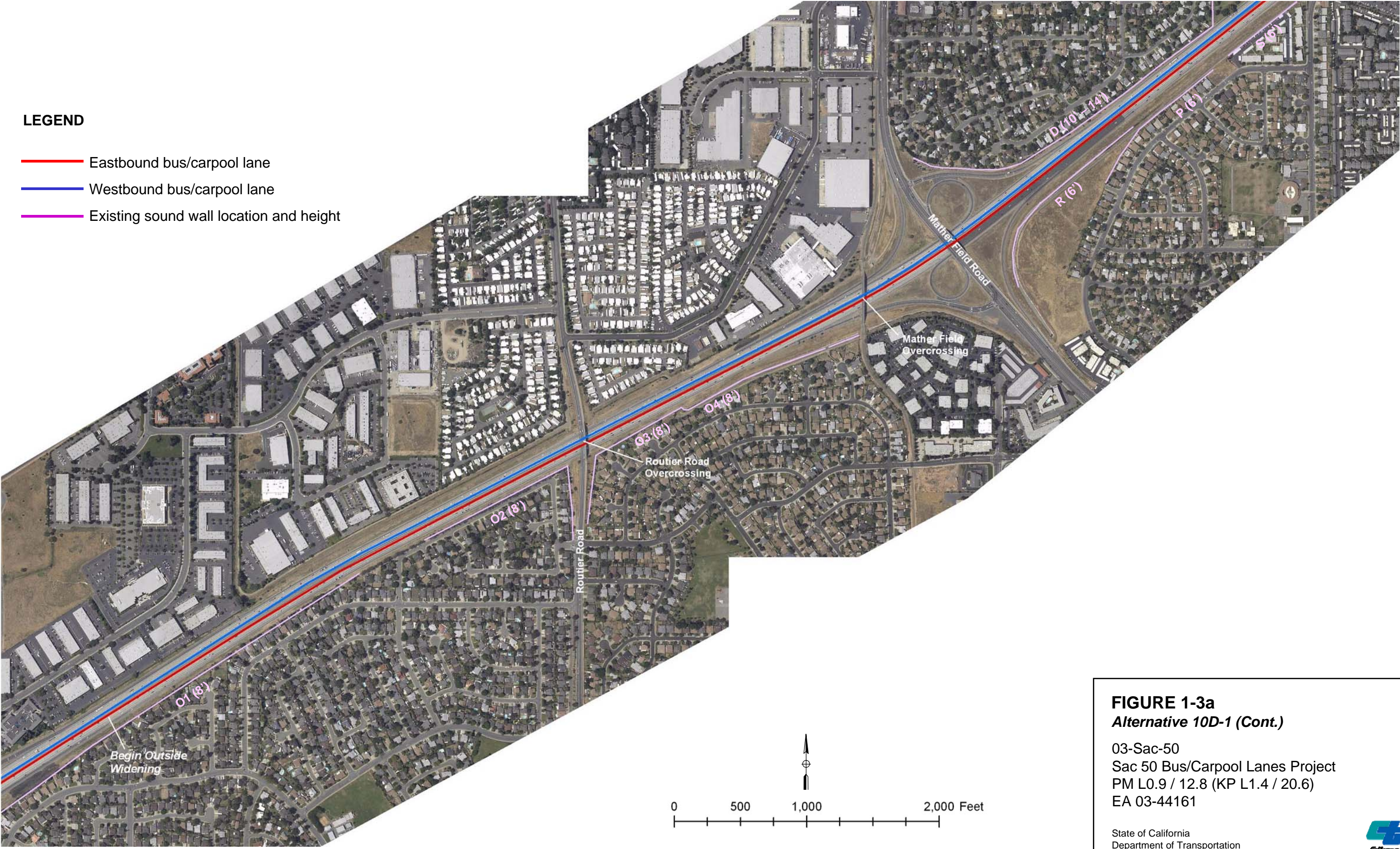


FIGURE 1-3a
Alternative 10D-1 (Cont.)

03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
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LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height



FIGURE 1-3a
Alternative 10D-1 (Cont.)
03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
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LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height



FIGURE 1-3a
Alternative 10D-1 (Cont.)

03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
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LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height

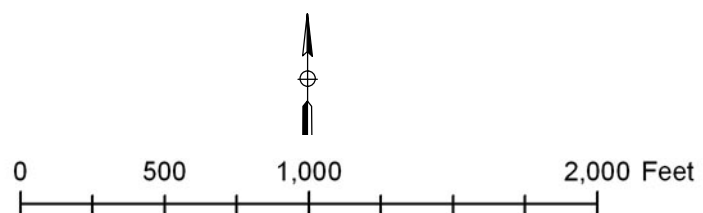


FIGURE 1-3b
Alternative 10D-3

03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
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LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height

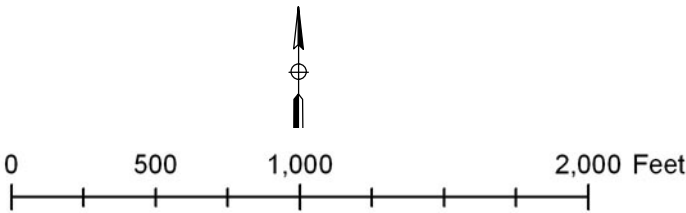


FIGURE 1-3b
Alternative 10D-3 (Cont.)
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Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
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LEGEND

- Eastbound bus/carpool lane
- Westbound bus/carpool lane
- Existing sound wall location and height



FIGURE 1-3b
Alternative 10D-3 (Cont.)
03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
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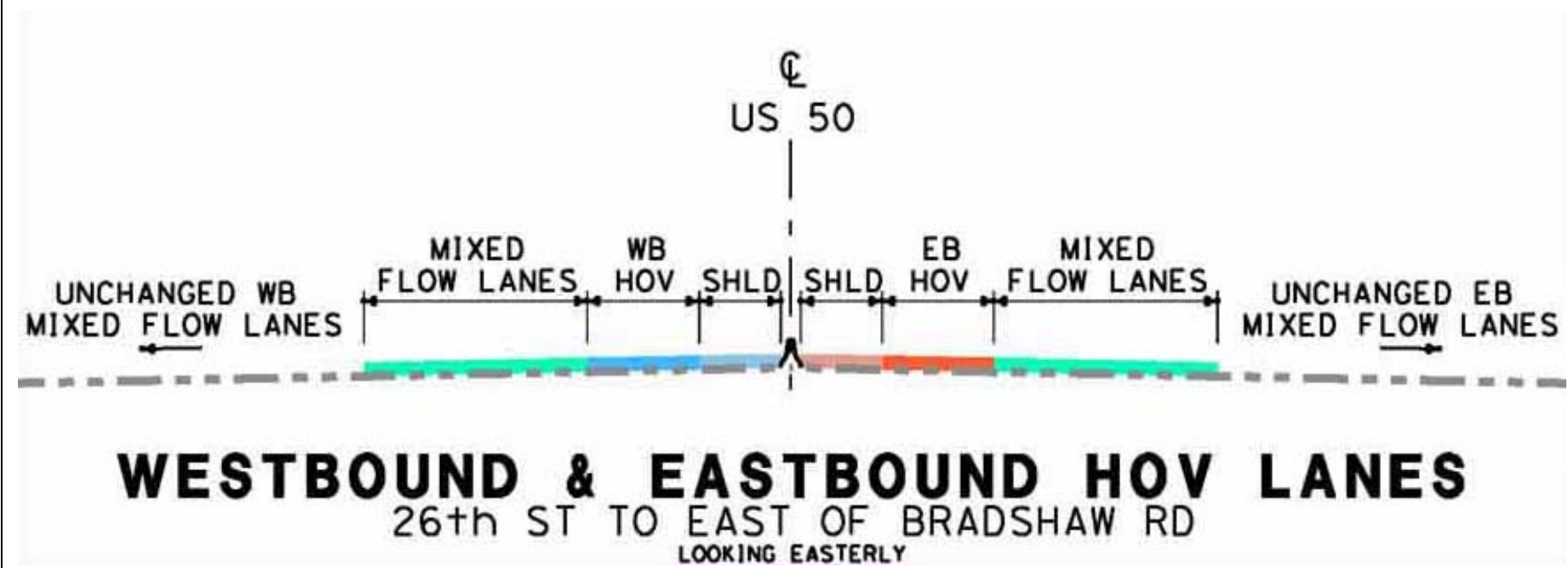
FIGURE 1-3b
Alternative 10D-3 (Cont.)

03-Sac-50
 Sac 50 Bus/Carpool Lanes Project
 PM L0.9 / 12.8 (KP L1.4 / 20.6)
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Alternative 10D-1 Typical Cross Section



Alternative 10D-3 Typical Cross Section

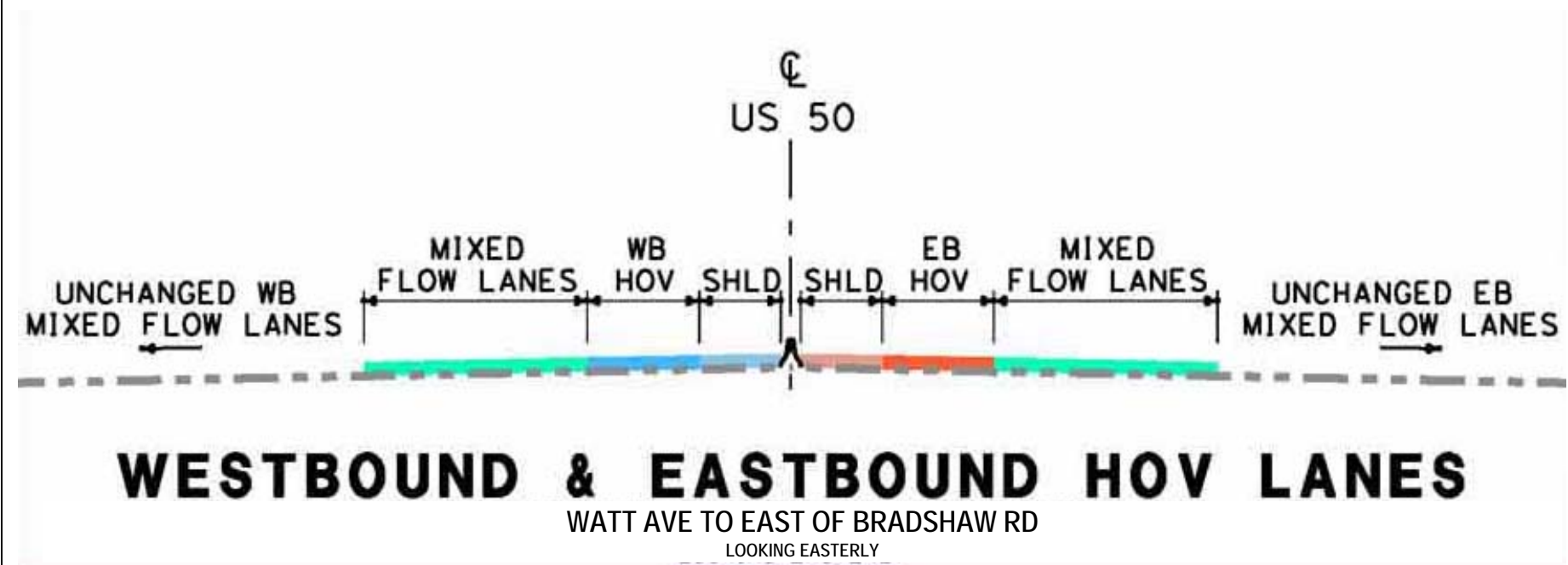


FIGURE 1-3c
Typical Cross Sections

03-Sac-50
Sac 50 Bus/Carpool Lanes Project
PM L0.9 / 12.8 (KP L1.4 / 20.6)
EA 03-44161

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CHAPTER 2 - AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION &/OR MITIGATION MEASURES

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document:

- Agricultural resources
- Geology and soils

Potentially affected resources are included in Figures 2.1-1a to 1p at the end of this chapter.

HUMAN ENVIRONMENT

For the community sections included in Human Environment (land use, growth inducement, community impacts, and community facilities), the area considered for potential effects ("Study Area") covers a one-half-mile area around US 50 in the project area, where direct project impacts are likely to occur. The Study Area includes portions of the City of Sacramento, the City of Rancho Cordova, and the unincorporated areas of Arden-Arcade, Rosemont, and La Riviera in Sacramento County. Potential impacts that may occur outside the Study Area have been noted where appropriate and applicable.

A Community Impact Assessment (CIA) was completed in October 2006 (bound separately). A copy is available from Caltrans District 3 office in Sacramento.

2.1 LAND USE AND PLANNING

2.1.1 Affected Environment

2.1.1.1 Existing Land Use Patterns

Land use in the Study Area includes residential, commercial, office, retail, industrial, institutional, recreational, and parks/open space. Most of the project area is urbanized; the undeveloped American River Parkway runs generally parallel to and north of the project. Outside of the project, land use transitions to agriculture; development is sparsest to the southeast of the project.

Land use from the Oak Park Interchange to Watt Avenue consists primarily of residential. Other major land uses include the California State University, Sacramento and U.C. Davis Medical Center. Land uses in the Rancho Cordova area include a mixture of residential and commercial uses. Office, industrial, and commercial land uses are located near the US 50/Sunrise Boulevard interchange area.

2.1.1.2 Project Area Plans and Policies

SACOG

Regional Blueprint

Typical of areas undergoing increasing development and growth, Sacramento County is faced with a lack of affordable housing close to urban job centers and increasingly distant residential housing developments from such centers, increasing traffic congestion, environmental pollution, and encroachment on open space and agricultural lands. In 2002, the Sacramento Area Council of Governments (SACOG) began its Sacramento Regional Blueprint planning effort (Blueprint). SACOG consists of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties, along with their constituent municipal governments. The Blueprint's purpose is to establish a long-term plan for growth within the region.

As part of the effort, SACOG studied current land use patterns and their potential effects on the region's transportation system, air quality, housing, open space, and other resources. The studies found that, assuming recent trends continue, large-lot, low-density housing would consume 660 square miles of undeveloped land by 2050. This would lead to longer commutes, greater air pollution, and a loss of open space and agricultural land. The preferred Blueprint scenario integrates smart growth concepts, such as high- and medium-density, mixed-use development, reinvestment in existing developed areas and the expansion of transportation alternatives. Through changes in land use, the Blueprint seeks to halve the amount of open space that would otherwise be consumed. Through higher density development and greater transit choices it also seeks to shorten commute times, reduce traffic congestion, lessen dependence on automobiles, and provide for housing choices that more closely align with the needs of the population (SACOG 2004).

In December 2004, a preferred Blueprint scenario was defined that focuses on compact, mixed-use development and a greater variety of transit choices. This Blueprint is intended to guide regional development through 2050. The proposed bus/carpool project is one of the transportation improvements included in the Blueprint's Preferred Scenario.

2006 Metropolitan Transportation Plan

SACOG's 2006 Metropolitan Transportation Plan (MTP) endorses the concept of a regional network of HOV lanes, including the proposed project. In response to the idea that congestion management would be better accomplished with investments in public transit, the MTP states that:

With more than a million empty seats in autos, but fewer than 10,000 empty seats in buses every morning and afternoon, carpools clearly have a place in the picture. [The projected]...53 percent increase in travel by 2027 means that, even if transit use could be increased tenfold and bicycle/walk trips tripled, the region still would face a 40 percent increase in travel by auto. At least in some places the road system must be expanded too.

City of Sacramento General Plan

The current City of Sacramento General Plan was adopted in January 1988. The city is currently in the process of developing an updated general plan. This process has included town hall meetings and community forums, aimed at making sure that the updated general plan reflects residents' views and concerns.

General Plan Update

In November 2005, the city adopted its "Vision and Guiding Principles" document, which sets out the city's key values and goals for the future. This document is designed to guide the development of the General Plan throughout the update process. The "guiding vision" identified in this document is to make Sacramento "the most livable city in America." In terms of transportation choices, the city's guiding principles emphasize multi-modal transportation and greater investment in transit systems.

As background to the "Visions and Guiding Principles" document, the City of Sacramento has also adopted (in November 2005) a "Planning Issues Report" that identifies key planning issues. The first of these issues mentioned is "Smart Growth," typified by compact development, higher residential densities, mixed-uses, a range of transportation choices, walkable neighborhoods, and open space protection. The "Planning Issues Report" mentions SACOG's Regional Blueprint as advocating this type of growth.

Current General Plan

At the time of the 1988 General Plan, the Circulation Element described Sacramento's freeways as "beginning to suffer from peak hour congestion." Traffic delays were described as "sporadic," lasting 10-20 minutes in several places. The Circulation Element associated this peak hour congestion with Los Angeles in the late 1950s; that is to say, leading to worsening future congestion. The Circulation Element states:

The distribution of employment centers as well as residential developments have reduced the effectiveness of the radial freeway and transit system. The city cannot solve the regional problem of dispersed land uses and increasing congestion. The city can, coordinating with other jurisdictions and transportation agencies, attempt to manage the growing problem.

The City of Sacramento's General Plan recommended a number of strategies to reduce future congestion on the region's freeways, including developing additional freeway capacity through the use of ridesharing, transit improvements, preferential treatment for buses and other high occupancy vehicles, ramp metering and flextime, as well as by adding additional lanes in existing rights-of-way (City of Sacramento 1988).

Rancho Cordova Draft General Plan

The Rancho Cordova General Plan, adopted in July 2006, identifies issues that the general plan's various elements are intended to solve. The General Plan anticipates a buildout population of over 300,000, compared to a population of 50,000 at the time of the Plan's preparation. Issues identified in the Land Use Element include:

- Balancing the mix of land uses to ensure the city can house its workforce and establish a fiscally viable future for the city.
- Integrating residential, commercial and office uses in a compact urban environment to improve livability and to reduce urban sprawl.
- Establishing more livable and sustainable neighborhoods where residents can walk to commercial services and recreational amenities.
- Unifying the community and ensuring mobility between areas separated by US 50 and Folsom South Canal.
- Promoting accessibility and walkability by integrating uses and expanding transportation options.
- Making Sacramento's streets friendlier to pedestrians and bicyclists.

Issues identified in the Circulation Element include:

- Strengthening regional connections, specifically working with Caltrans to identify potential improvements to US 50 and working with neighboring communities, the County, and SACOG on development of the Elk Grove-Rancho Cordova-El Dorado Hills connector
- As one of the largest employment centers in the Sacramento region, Rancho Cordova must accommodate major daily influxes of employees. Maintaining and improving the ability of employees to reach their jobs is key to the long-term economic vitality of the community.
- In addition to employee access, the city's business sector relies upon efficient movement in order to remain competitive and successful.
- Creating bikeways that are more desirable to a wide range of cyclists, especially families with young children.
- Reducing vehicle congestion on the city's roadways by promoting other modes of transportation.
- Increasing the number and convenience of transit opportunities within the Planning Area, by expanding routes, increasing frequency, and reducing safety concerns.
- Enhancing the functionality of light rail as an employee commuter option by providing convenient transit extensions from light rail to job centers.

Another challenge identified in the General Plan is the development of housing compatible with the city's workforce. As stated in the General Plan, the city needs a range of housing options, including homes for executives and affordable housing. In May 2005, the median sales price of homes in Rancho Cordova was \$317,000. The Draft Plan states that the city's low-income and very low-income households can afford, at a maximum, homes priced at \$171,000 and \$106,000, respectively.

Sacramento County General Plan

Sacramento County adopted its General Plan in December 1993. At the time of the General Plan's preparation, 65 percent of unincorporated Sacramento County was zoned for agriculture and 20 percent was zoned for single-family homes on parcels of one or more acres. Most of the project area is located in either the City of Sacramento or the City of Rancho Cordova. The portion between Watt Avenue and Bradshaw Road is included within both cities' planning areas but is technically part of unincorporated Sacramento County. North of US 50, this primarily residential area is known as La Riviera. South is the Rosemont area.

In its overall philosophy regarding future growth, the County's General Plan has much in common with SACOG's Regional Blueprint. The General Plan warns of problems associated with continuing the traditional pattern of low-density suburban development. The County's General Plan states:

Maintaining the status quo is unrealistic: the incremental financial environmental cost of low-density urban fringe growth is greater than existing and new residents are willing to pay. The General Plan resolves the problems of increased development costs, premature development, and regional shifts by strategies that direct the unincorporated area towards a more urban than suburban character.

The County's General Plan Circulation Element reflects this concern with sprawling development patterns. The Circulation Element is critical of what it calls the automobile and road-oriented transportation system, associating it with low density, sprawling communities. The Circulation Element states that:

The present land use and transportation system is oriented towards private automobiles. A road network releases forces throughout the economy that causes increased driving because destinations are expanding outward.... Improving land use and transportation planning will reduce these future spill-over effects.

The Circulation Element's overall objectives are described as seeking imaginative means to increase the supply of transportation options, managing the demand for transportation, and building a transportation system balanced between roads and transit.

The County's General Plan supports the construction of a regional network of HOV lanes. Circulation Element Policy 24 describes HOV lanes as having a "significant potential to increase the effective carrying capacity of the existing road network by increasing the number of individuals in each vehicle." As a result, HOV lanes benefit air quality and transit operations (since transit vehicles may also use HOV lanes).

But the Circulation Element points out that "the traditional Caltrans policy to never take an existing lane for an HOV lane is outdated. That Caltrans policy would allow HOV lanes only when they are newly constructed, but new construction is only an inducement to additional automobile travel which will worsen congestion and air quality." However, as described in Section 1.6.5.2 of this report, the "take-a-lane" option proved the poorest performer of all alternatives studied, resulting in the highest levels of congestion, the lowest average speeds, and the lowest throughput volumes.

2.1.1.3 Jobs/Housing Balance and Commuting Patterns

How land uses are distributed within communities has implications for local and regional commuting patterns. A city with very little land used for housing, relative to its supply of industrial or commercial land, will be a destination for commuters. A city that is predominantly residential will be a source of commuters.

Typically, a community is considered "balanced" when the number of employment opportunities is approximately equal to the number of homes. The ratio of jobs to housing units in a place provides an

estimate of the overall tendency of workers to commute in or out of that place. In theory, a balanced community would be one in which no workers were obliged to leave the community for work.

In the City of Sacramento, for instance, there were nearly two jobs for each housing unit in the year 2000, indicating an imbalance in favor of jobs. In the City of Rancho Cordova, there were nearly three jobs for each housing unit. In Sacramento County and Folsom there were 1.4 and 1.5 jobs per housing unit, respectively. These data reinforce what peak-hour traffic volumes show: that the cities of Sacramento and Rancho Cordova are destinations for commuters, many of whom come from outlying or unincorporated areas.

Commuting patterns are more complicated than the jobs-housing balance alone would indicate. In Rancho Cordova, for instance, nearly three-quarters of the workforce works elsewhere even though job opportunities outnumber housing units by three to one. And while the City of Sacramento is the major employment center in the region, 40 percent of its workers work outside of the city, according to data from the 2000 Census (up from 32 percent at the time of the 1990 Census).

Jobs / Housing Balance Projections

SACOG's projections indicate that job growth in Sacramento County will exceed population growth by approximately 16 percent between 2005 and 2025 (Table 2.1-1). The Study Area's population, on the other hand, is expected to decline by nearly 3 percent by 2025, while the number of jobs will grow by 142 percent. SACOG estimates that between 2005 and 2025 the City of Sacramento's population will increase by 20 percent, while employment opportunities increase by 38 percent. Rancho Cordova's population is expected to increase by over 127 percent, while employment opportunities increase by nearly 117 percent. In the City of Folsom, population is projected to grow by 15 percent between 2005 and 2025, while jobs are expected to grow 23 percent.

Based on these projections, the project area corridor will increasingly become a destination for commuters over the next 20 years. Transportation alternatives of all kinds will become more important, as workers come from outlying areas travel to employment centers on the US 50 corridor.

2.1.2 Environmental Consequences

2.1.2.1 Disruption of Orderly Planned Development

Build Alternatives

Adjacent to / Under Freeway

The proposed project would require very little acquisition of property outside of the existing freeway's right of way (approximately 0.3 acres of currently zoned commercial property near Zinfandel Drive interchange) and no displacement of homes or businesses.

2.1.2.2 Consistency with Local Plans and Policies

Build Alternatives

Table 2.1-2 provides a summary of applicable goals, policies, and objectives from the current City of Sacramento, City of Rancho Cordova, and Sacramento County general plans.

Regional Plans

The proposed project is a component of SACOG's Regional Blueprint and 2006 MTP.

City of Sacramento

General Plan Update

The City of Sacramento is in the process of updating its General Plan. While the existing General Plan, adopted in 1988, is the official planning document for the city for the time being, the updated General Plan will likely be adopted during the proposed project's planning stages.

The city has adopted a set of guiding principles to serve as a foundation for the new General Plan. For the purposes of this report, it is useful to gauge the project's compatibility with these principles. Foremost among them is that future development should proceed according to Smart Growth principles, similar to those advocated by SACOG's Regional Blueprint. As mentioned, this Blueprint includes the proposed project.

The city's guiding principles for mobility emphasize that future transportation investments should provide city residents with a range of transportation options. The city's "Vision and Guiding Principles" document emphasizes alternatives to the automobile, such as transit and walking. The proposed project provides an incentive to use bus transit, since buses would be able to use the bus/carpool lanes.

Existing General Plan

The existing General Plan's Circulation Element includes three goals designed to increase vehicle occupancy, including Central City Transportation Goal C: "Develop a balanced transportation system which will encourage the use of public transit, multiple occupancy of the private automobile, and other forms of transportation." Transportation Systems Management Goal B supports increasing the transportation system's capacity.

The city's General Plan also includes goals to preserve the quality of the city's neighborhoods and direct traffic away from neighborhoods. Comments received in response to Caltrans' Notice of Preparation emphasized residents' concerns that the proposed project would add traffic to neighborhood streets.

Rancho Cordova Draft General Plan

Rancho Cordova's Draft General Plan is largely silent on the subject of improvements to mainline US 50. The Draft General Plan identifies the need to improve the balance between employment and housing opportunities within the community. The plan commits Rancho Cordova to participating in SACOG's land use and transportation planning efforts, including the Regional Blueprint. See Table 2.1-2 for additional information.

Sacramento County General Plan

The proposed project is inconsistent with Circulation Element Policy 24, which supports a regional HOV lane network developed by designating existing mixed flow lanes for HOV use. The discussion of this policy within the General Plan critiques Caltrans policy of constructing new lanes for HOV use on the basis that such lanes increase automobile travel, thus adding congestion and reducing air quality. Caltrans Air Quality Study does not identify any adverse impacts to air quality as a result of the proposed project. The Traffic Report prepared for the project studied the conversion of an existing lane to an HOV lane and identified this option as resulting in worse congestion than any of the other alternatives studied, including the No Build alternative.

2.1.2.3 Jobs / Housing Balance

The proposed project is part of the Regional Blueprint, and so is part of a larger land use and transportation plan that encourages a balance of jobs and housing opportunities within the region's communities.

SACOG predicts that, under the Preferred Blueprint Scenario, the City of Sacramento would have 1.7 jobs for each housing unit in 2050, compared to 2.6 under the base case. In Rancho Cordova and Folsom, there would be between one and two jobs per housing unit. The Arden-Arcade / Carmichael /

Fair Oaks / Orangevale area and Sacramento County as a whole are expected to have a balance of homes and jobs.

By improving commute times, the project may encourage some commuters to look for housing in communities farther east than they otherwise would. This would be true of any improvement in commute times, whether by light rail, bus, or freeway. Given better travel times, commuters can choose to travel farther, taking advantage of the time savings to access new housing markets farther from the central city.

In the case of the proposed project, bus/carpool lane users may be able to travel an additional 15 or 20 miles in the time that they would otherwise spend making the commute between downtown Sacramento and Sunrise Boulevard. This would mean that the communities in eastern El Dorado County, including El Dorado Hills, Shingle Springs, and Cameron Park, would all be more accessible to commuters working in downtown Sacramento.

At the same time, the emergence of Rancho Cordova as an employment center means that, to some extent, this eastward shift is already occurring and that the proposed project would do little to affect El Dorado County-based commuters' travel times. According to data from the El Dorado County Transit Authority, the greatest increase in jobs for El Dorado County residents in the US 50 corridor is projected to be in Rancho Cordova, not downtown Sacramento. The proposed project would have a minimal effect on commute times between Rancho Cordova, on the eastern end of the project's limits, and points east.

Ultimately, congestion on the US 50 corridor is likely to be driven by the expansion of the employment base in the cities of Sacramento and Rancho Cordova. Sacramento is anticipated to add 140,000 jobs by 2030. Rancho Cordova is expected to add 144,000 jobs by 2050, under the Preferred Blueprint Scenario. As a result, more and more commuters will be drawn to these cities from surrounding communities whether or not the proposed project is constructed. If the project is not constructed, past trends and data from other cities suggest that commuters are willing to tolerate lengthy commutes in order to maintain their preferred locations for home and work. In the San Francisco Bay Area, for example, median commute times for workers in some of the outlying suburbs were as high as 40 minutes at the time of the 2000 Census.

Table 2.1-1. Projected Population, Household and Number of Jobs Changes, 2005 – 2025

Area	2005 *			2025			Change, 2005 to 2025					
	Population	Households	Jobs	Population	Households	Jobs	Population		Households		Jobs	
							Number	Percent	Number	Percent	Number	Percent
El Dorado County	147,045	56,111	51,644	197,875	78,990	69,669	50,830	35%	22,879	41%	18,026	35%
Placerville	10,072	4,292	13,402	15,193	6,404	14,446	5,121	51%	2,112	49%	1,044	8%
Unincorporated El Dorado County	136,974	51,819	38,241	182,682	72,586	55,223	45,709	33%	20,767	40%	16,982	44%
Sacramento County	1,361,637	502,142	657,100	1,725,710	691,548	854,804	364,072	27%	189,406	38%	197,704	30%
Study Area CTs** (2000)	145,828	63,600	70,929	141,599	62,010	171,719	-4,229	-3%	-1,590	-3%	100,790	142%
Folsom	67,325	23,178	31,654	77,695	30,289	39,015	10,369	15%	7,111	31%	7,361	23%
Sacramento	448,648	169,921	293,218	538,303	217,048	405,943	89,655	20%	47,127	28%	112,725	38%
Rancho Cordova	74,558	26,984	53,127	169,081	65,041	115,504	94,523	127%	38,057	141%	62,376	117%
SACOG Region	2,151,479	796,905	1,057,823	2,864,387	1,147,212	1,435,875	712,908	33%	350,307	44%	378,052	36%

Source: SACOG 2004

* Base year population numbers are estimates made by the State Department of Finance's Demographic Research Unit

**Data for Study Area Census Tracts is for the period from 2000 to 2025.

Table 2.1-2. Project Consistency with Local Plans and Policies

Plan	Number	Goal / Objective / Policy	Consistency
City of Sacramento	Land Use Goal A	Improve the quality of residential neighborhoods citywide by protecting, preserving and enhancing their character.	As an improvement to mainline US 50, the project would not directly affect the city's neighborhoods. The project includes a study of potential sound barriers; these may enhance adjacent neighborhoods.
	Circulation Overall Goal A	Create a safe, efficient surface transportation network for the movement of people and goods.	The project would improve people-moving efficiency on US 50.
	Circulation Overall Goal B	Provide all citizens in all communities of the city with access to a transportation network that serves both the city and region, either by personal vehicle or transit. Make a special effort to maximize alternatives to single occupant vehicle use, such as public transit.	The project would mean reduced travel times for commuters using buses and carpools.
	Circulation Overall Goal C	Maintain a desirable quality of life, including good air quality while supporting planned land use and population growth.	The proposed project does not adversely affect regional air quality. The project is part of the Regional Transportation Plan.
	Central City Transportation Goal C	Develop a balanced transportation system that will encourage the use of public transit, multiple occupancy of the private automobile, and other forms of transportation.	The project would give commuters in buses and high occupancy vehicles a travel time savings over single occupant vehicles.
	Central City Transportation Goal C, Policy 1, Action A	Consider requiring the use of carpool and vanpool program incentives to and within the Central City.	The project would provide an incentive to carpool / vanpool users in the form of travel time savings.
	Transportation Systems Management Goal A	Increase the commute vehicle occupancy rate by fifty percent. According to the 1980 Census, the vehicle occupancy rate for the City of Sacramento was 1.28 persons/vehicle. A goal of increasing vehicle occupancy will incorporate all of the strategies considered in a TSM program, reducing vehicular trips therefore increasing road capacity and allowing continued growth with good air quality.	The Traffic Report prepared for this project anticipates vehicles in HOV lanes would have 2.25 occupants. HOV lanes would provide more efficient people-moving potential during the peak hour than the No Build alternative.
	Transportation Systems Management Goal A, Policy 1	Encourage and support programs that increase vehicle occupancy.	The proposed project would provide an incentive to carpool.
	Transportation Systems Management Goal B	Increase the capacity of the transportation system.	The proposed project would increase people-moving capacity on the US 50 corridor by making the most efficient use of existing freeway right of way.

Plan	Number	Goal / Objective / Policy	Consistency
	Commerce and Industry Land Use Element, Heavy Commercial / Warehouse Industrial Areas	Assist private interests to maintain and strengthen the competitive advantages of Sacramento's warehousing/distribution industry.	The Commerce and Industry Land Use Element identifies the region's extensive transportation network as giving Sacramento an edge as a warehousing hub. By improving traffic flow on a major interstate freeway, the project would help maintain this competitive edge.
	Noise Element, Goal C	Eliminate or minimize the noise impacts of future development on existing land uses in Sacramento.	Caltrans will evaluate the reasonableness and feasibility of noise barriers along much of the project's length.
Rancho Cordova Draft General Plan	Land Use Policy LU.13	Maintain a strong jobs-housing ratio, with a diverse job base and corresponding housing stock, within the Planning Area. Improve the relationship and proximity of jobs to housing and commercial services.	The proposed project would not adversely affect the city's plans to promote a greater balance of jobs and housing.
	Land Use Policy LU.3.4	Participate in the Sacramento Area Council of Governments' regional planning programs (e.g., Blueprint, Regional Housing Needs Plan, Metropolitan Transportation Plan) and coordinate city plans and programs with those of the Council of Governments.	The proposed project is included in SACOG's Regional Blueprint and the 2006 MTP.
	Circulation Goal C.1	Goal C.1 - Develop a roadway system that accommodates future land uses at the city's desired level of service, provides multiple options for travel routes, protects residential areas from excessive traffic, coexists with other travel modes, and contributes to the quality of the city's residential, commercial, office, and industrial areas.	The proposed project would improve US 50's person-moving capacity for people both living and working in Rancho Cordova.
	Policy C.1.9	In an effort to reduce automobile traffic and congestion and increase use of other travel modes, support the use of trip reduction programs.	The project would encourage trip reduction by giving commuters an incentive to use the bus or find a carpool.
	Circulation Policy C.2.2	Policy C.2.2 – Require bicycle and pedestrian connections to public transit systems at stops, stations, and terminals; carpool/vanpool park-and-ride lots; and activity centers (e.g., schools, community centers, medical facilities, senior residences, parks, employment centers, high density residential areas, commercial centers).	Two pedestrian overcrossings (POC) will be removed and replaced as a result of the project. Pedestrian and bicycle access would not be adversely affected.
	Circulation Policy C.2.5	Provide safe and convenient bicycle access to all parts of the community.	

Plan	Number	Goal / Objective / Policy	Consistency
Sacramento County General Plan	Circulation Policy CI-4.	Require full and accurate analysis of all alternatives for public transit, including expanded bus service, private carrier operations, road capacity improvements, and rail transit, prior to committing funds for construction. Evaluation shall specifically include full social and economic costs and benefits, as well as net system effects and per-new-rider costs.	The project may boost bus ridership by providing bus riders with a timesaving advantage over vehicles in the mixed flow lane.
	Circulation Policy CI-24.	<p>Sacramento County shall support a program to develop a regional network of High Occupancy Vehicle (HOV) Lanes throughout the urban area that includes provisions to designate existing mixed flow lanes for HOV use.</p> <p>Discussion: HOV lanes have a significant potential to increase the effective carrying capacity of the existing road network by increasing the number of individuals in each vehicle. This benefits air quality, road funding programs (since HOV lanes can be created from existing lanes), and transit operations (since transit vehicles may also use HOV lanes). The traditional CALTRANS policy to never take an existing lane for an HOV lane is outdated. That CALTRANS policy would allow HOV lanes only when they are newly constructed, but new construction is only an inducement to additional automobile travel that will worsen congestion and air quality.</p>	Caltrans traffic modeling shows that using an existing mixed flow lane for HOV use would be worse for traffic congestion than selecting the No Build alternative.

2.2 GROWTH INDUCEMENT

2.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which implement NEPA, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

CEQA also requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

2.2.2 Affected Environment

2.2.2.1 Growth Inducement Analysis

Caltrans "Guidance for Preparers of Growth-related, Indirect Impact Analyses" (Guidance) recommends the following six steps when assessing a project's potential growth inducing impacts:

- Step 1: Review previous project information and decide on the approach and level of effort needed for the analysis.
- Step 2: Identify the potential for growth for each alternative.
- Step 3: Assess the growth-related effects of each alternative to resources of concern.
- Step 4: Consider additional opportunities to avoid and minimize growth-related impacts.
- Step 5: Compare the results of the analysis for all alternatives.
- Step 6: Document the process and findings of the analysis.

The study area for indirect and secondary impacts, including potential growth inducement, is focused on the area to the southeast of the US 50 / Sunrise Boulevard interchange, within a 7.5-mile radius.

Step 1: Previous Project Information, Methodology, and Level of Effort

Previous Information

The Supplemental Project Study Report prepared in 2001 identified the need for a Community Impact Assessment to evaluate the project's impacts.

The Corridor Advisory Committee (CAC) that was formed to provide input on the proposed project repeatedly linked the proposed project to future growth in the US 50 corridor. One comment provided by the CAC points out that the project would respond to existing problems and would anticipate future growth. Another comment states that the project would encourage suburban sprawl. The CAC's comments were also critical of the No Build alternative, since it would not accommodate planned development.

Methodology and Level of Effort

As the Guidance states: "Adding high occupancy vehicle (HOV) lanes or mixed-flow lanes are examples of projects that could cause growth-related impacts because they add capacity to an existing facility. These projects warrant closer consideration to determine whether an analysis of growth-related impacts will be necessary."

The fact that the proposed project is expected to reduce travel time on US 50 by approximately 10 minutes suggests that a study of possible growth inducement is warranted. At the same time, major residential and commercial development adjacent to the project's eastern limits is planned regardless of the proposed project. Given existing and projected population levels, the proposed improvement would not be expected to either eliminate peak period traffic congestion or improve the roadway's peak period Level of Service. While the project's eastern end is currently adjacent to Sacramento County's suburban fringe, projects being planned and constructed are turning this area into a continuation of the suburban corridor to the west.

A screening-level analysis comparing the project's added capacity and the near-term projections of development on the project's eastern limits suggests that the project has a limited capacity to change land use patterns in the area. Therefore, the methodology used is a qualitative analysis of factors contributing to and constraining growth in this area, and how the project would alter these opportunities and constraints. A combination of approaches, including the use of geographic information systems (GIS) software and traffic forecasts, is used to support this process of qualitative inference.

Step 2: Potential for Growth

Generally speaking, there is no difference among the 2 build alternatives in terms of effects on accessibility on the project's eastern end. The alternatives vary in their effects on downtown Sacramento, a built-out, urbanized environment. Travel times and speeds on US 50 vary under the different build alternatives, but the differences are marginal. In practice, drivers would be unlikely to observe a travel time difference of one or two minutes while driving the nearly 11 miles of highway in the project's limits.

Rancho Cordova

The potential for growth in the Study Area is considerable. The Study Area generally coincides with the boundaries of 10 of Rancho Cordova's land use "Planning Areas" – subsets of the city's Land Use Element that include areas both inside and outside of the city's limits and sphere of influence. The city has prepared advisory land use plans for areas currently under Sacramento County's jurisdiction. The 10 areas in the Study Area are: Aerojet, East Planning Area, Glenborough, Grant Line North, Grant Line West, Jackson, Rio del Oro, Suncreek, Sunrise Boulevard South, and Westborough. Of these, six are already inside or partly within the city's limits and are thus very likely to be built out within the next 10 to 15 years. The environmental review process has begun on several developments within the Suncreek Preserve Planning Area.

The 10 planning areas in the Study Area would be home to approximately 130,000 residents under the city's plans, if the four areas outside of the city's limits were annexed. The Aerojet and Sunrise Boulevard South areas are already home to commercial and industrial development. Other areas, such as the East and Jackson Planning Areas, are on the periphery of the Rancho Cordova General Plan Planning Area and are therefore not expected to be developed within the 20-year period covered in the Rancho Cordova's General Plan.

Development in Rancho Cordova has been occurring at a rapid pace, particularly in the Study Area. Between 1990 and 2000, Rancho Cordova's total population increased by 13 percent. In this period, population in the two Census Tracts that take in most of the Study Area grew by 31 percent, from 7,700 to 10,100 residents.

Folsom

The Study Area also includes a portion of the area south of US 50 adjacent to the City of Folsom that the city is considering annexing. The City of Folsom has included this area within its sphere of influence and has developed a proposal for the land use in this area, in the event that it is annexed in the future. During community meetings held in 2004, Folsom residents expressed a number of concerns about this annexation, including the added traffic congestion on US 50 that could result from future residential development. Other concerns included traffic congestion on local streets, air quality

concerns, water supply, and changes in the city's overall character. Based on the land use allocations currently being considered, this area would be built out with between 11,000 and 15,000 housing units.

El Dorado County

El Dorado County adopted a General Plan in June 2004. The Housing Element adopted with this Plan indicates that 14,000 residential units had been approved prior to the adoption of the Housing Element and that these units account for "a substantial amount of the county's expected growth over the next 20 years." The Housing Element goes on to say that the "majority of units... are near the westernmost boundary of the county, close to the job centers of Folsom, Sacramento, and the El Dorado Hills Business Park." The Housing Element's inventory of developable land indicates zoned land in the County with the capacity for an additional 9,900 housing units. The General Plan focuses development on existing communities with sufficient infrastructure capacity to support additional residents. By allowing growth in these communities, the County hopes to alleviate growth pressure on the rural areas outside of established communities.

Proposed Project and Added Capacity

The proposed project would improve traffic flow on US 50 and improve travel times for vehicles in the bus/carpool lanes. According to the Traffic Report, during the morning peak period, the freeway currently carries 9,500 people per hour in the westbound lanes in the segment between Stockton Boulevard and 59th Street. By 2010, if no improvements were made, congestion would reduce this number to 9,000 people and by 2030 it would be 8,700. The addition of bus/carpool lanes increases the freeway's carrying capacity in this segment to 10,300 in 2010, and to 11,090 in 2030. The net gain in persons moved per hour is on the order of 750 (near-term) to 2,300 (long-term). Assuming a three-hour peak period, the freeway improvement would mean an increase in capacity of 2,250 commuters in the near term (2010) and 4,650 commuters in the long term (2030).

Given the levels of development being anticipated in Rancho Cordova, Folsom, and western El Dorado County, the proposed project would not add sufficient freeway capacity to affect growth patterns.

Step 3: Growth-related effects and resources of concern

As development proceeds in the Study Area, each project is being and will be evaluated for its impacts to natural and community resources. Development is already occurring and is likely to continue whether or not the proposed project is constructed. All of the proposed build alternatives would provide similar benefits to development in this area in terms of accessibility. None of the available data suggest that not building the proposed project would prevent or reduce the level or type of development outlined in local planning documents.

Step 4: Consider Additional Opportunities to Avoid and Minimize Growth-related impacts

The project is not expected to alter development patterns in the Study Area. The project may affect the pace of development in this area, but the local governments in this area have begun tentatively describing future land use in this area. Measures to prevent development in this area, in addition to being unjustified in light of the project's minor impacts on land use, would be inappropriate, given the local governments' plans for development in this area.

Step 5: Compare the Results Of The Analysis For All Alternatives

Because the proposed alternatives all utilize the existing alignment of US 50, there is no difference between the two build alternatives. In terms of impacts on overall development patterns in the Study Area, there is not likely to be a difference between the build alternatives and the No Build alternative. The addition of bus/carpool lanes may affect the pace of development in the Study Area, but not constructing the project would not be likely to change long-term land use in this area.

Step 6: Document the process and findings of the analysis

Process

Traffic Information

The Traffic Report prepared by Caltrans for this project was the source for time savings data and projected post-project Level of Service information. See Chapter 2.5, Traffic and Transportation, for a summary of these findings.

Geographic Information Systems

Based on the assumptions listed below, geographic information systems (GIS) software was used to develop a Study Area for indirect and secondary impacts. Planning information from Rancho Cordova and Folsom was georeferenced to land use and Census data for this area in order to analyze conditions in the Study Area.

Planning Information

Rancho Cordova

Rancho Cordova's General Plan Land Use Element, adopted in June 2006, was the basis for much of the information on the Study Area. The Land Use Element provided information on each of the planning areas in the Study Area, including environmental constraints and proposed buildout populations. Additional information on the recent status of development projects came from the city's internet site.

Folsom

The City of Folsom's internet site includes several pages and information on the "South of Highway 50 Area," including records from public scoping meetings and maps of proposed future land uses.

El Dorado County

The El Dorado County General Plan's Housing Element provided information on the County's capacity to accommodate new development based on existing zoning. The Housing Element also provides a brief summary of the circumstances surrounding the County's "existing commitments": the 14,000 residential units approved prior to the adoption of the existing General Plan.

Assumptions Included in Analysis

Assumption 1: Regardless of transportation investments, Sacramento County's population (including incorporated cities) is projected to increase by approximately 400,000 residents between 2005 and 2025.

Assumption 2: The analysis concentrates on undeveloped parts of Sacramento County, rather than on the project's potential to affect infill development rates, because infill development is generally considered a benefit rather than an adverse impact of a project. Additionally, there is a lack of information on the correlation between accessibility improvements and infill development rates.

2.2.3 Environmental Consequences

Build Alternatives

The proposed project would increase the capacity of an existing freeway that is currently heavily congested. The project would increase the freeway's capacity and improve travel times, particularly compared to conditions under the No Build alternative. In real terms, none of the proposed alternatives would improve Level of Service in the project's limits above "F" (congested / stop-and-go) conditions. The proposed bus/carpool lanes would be insufficient to ensure a freeway with no delays, given the levels of residential and non-residential development planned for this area. With or without the proposed project, the cities of Sacramento, Rancho Cordova and Folsom are all expected to see high levels of growth in the next 20 years.

2.3 COMMUNITY IMPACTS (SOCIAL AND ECONOMIC) AND ENVIRONMENTAL JUSTICE

2.3.1 Affected Environment

2.3.1.1 Demographic Characteristics-Population, Households, Age and Income

Within the Study Area, there has been a demographic shift; more people are residing away from commercial growth areas.

The population within the Study Area has declined: between 1990 and 2000, the cities of Sacramento and Rancho Cordova grew by 10.2 and 13 percent, respectively. During the same period, the Study Area (which represents approximately 12 percent of the County's total population) saw a population decline of approximately 2.9 percent from 152,000 to 147,500 (Table 2.3-1).

The total number of households in the Study Area increased slightly, while increasing at a much higher percentage outside the Study Area: between 1990 and 2000, the total number of households in the Study Area increased by approximately one percent from 63,600 to 64,200, while the number of households increased countywide by approximately 15 percent, from 394,500 to 453,600. The number of households in the cities of Sacramento and Rancho Cordova increased by 7 and 12 percent, respectively. Household size was comparable between all areas. In the Study Area, the average household size was 2.32, while it was 2.64 for the County, 2.57 for the City of Sacramento, and 2.68 for Rancho Cordova (Table 2.3-1).

Age composition was consistent throughout the region. In 2000, residents between 25 and 54 years old accounted for nearly half of the population of the Study Area and the County.

Median household income in the Study Area in 2000 was \$38,500, lower than the County and the City of Rancho Cordova (\$43,800 and \$40,100, respectively), but higher than the City of Sacramento (\$37,000). Per capita income in the Study Area was \$21,900, higher than the County and Sacramento and Rancho Cordova (\$21,100, \$18,700, and \$18,100, respectively) (Table 2.3-1).

The poverty rate in the Study Area was approximately 16 percent, compared to 14 percent in the County, 20 percent in the City of Sacramento, and 16 percent in the City of Rancho Cordova.

Based on recent data for the City and County of Sacramento, in 2005, median household income in the County increased to \$52,000, per capita income had increased to \$24,600, and the poverty rate had fallen to 13.6 percent. In the City of Sacramento, median household income increased to \$44,900, per capita income increased to \$22,800, and the poverty rate fell to 19 percent. Note that 2004 data was not available for the Study Area.

2.3.1.2 Ethnicity

The Study Area's ethnic composition in 2000 was 66% white, 10% African American, 10% Asian and 14% other, and 14% Hispanic (of any race). These are similar percentages for Sacramento County and Rancho Cordova, but different than the City of Sacramento (Table 2.3-2).

2.3.1.3 Community / Neighborhood Characteristics

Various neighborhoods are adjacent to US 50 within the Study Area, including::

- Between I-5 and the Oak Park Interchange: Southside Park, Richmond Grove, Poverty Ridge, Newton-Booth, Upper Land Park, Land Park, and Curtis Park
- Between Oak Park Interchange and Watt Ave.: East Sacramento, California State University Sacramento (CSUS), Campus Commons, Sierra Oaks, North Oak Park, Med Center (the

neighborhood adjacent to the UC Davis Medical Center), Elmhurst, Tahoe Park, Tahoe Park East, College/Glen, and Granite Regional Park

Additionally, the Study Area includes the unincorporated communities of Arden-Arcade, Rosemont, and La Riviera.

2.3.1.4 Growth

The City of Sacramento is expected to continue to be the region's largest city and employment center, although within the US 50 corridor, Rancho Cordova and Folsom are also projected to add large numbers of jobs. From 2000 to 2025, Sacramento is expected to grow by nearly 131,000 residents (32% growth) (Table 2.3-1). The city is expected to add 112,700 jobs during this period, a 38 percent increase, for a 2025 employment base of over 400,000 jobs (SACOG 2006b).

SACOG projects that Rancho Cordova will grow 127 percent, from a 2005 population of 75,000 to a 2025 population of 170,000. The number of jobs in Rancho Cordova is expected to increase 117 percent, from 53,000 to 115,500 (SACOG 2006b).

Communities east of the Study Area are also expected to grow. SACOG projects that Folsom's population will grow by 10,000, for a 2025 population of 77,700 and an employment base of nearly 40,000 jobs. SACOG projections show El Dorado County adding nearly 51,000 residents between 2005 and 2025, for a population of 200,000 residents (excluding the Tahoe Basin). El Dorado County's employment base is also expected to expand, from 51,000 jobs to nearly 70,000 (SACOG 2006b).

2.3.1.5 Housing

The Study Area's housing stock includes a combination of multi-story apartment buildings and single-family homes. Neighborhoods in downtown Sacramento include single-family homes, multi-family dwellings, and local businesses. The Study Area had a total of 68,000 housing units at the time of the 2000 Census, with a vacancy rate of 5.5 percent. According to the 2000 Census, the median home value in the Study Area was lower at \$136,000 in 2000, while the median household income was also lower at \$38,500 (updated data for the Study Area, which is an aggregation of Census Tracts, are not available for the 2004 American Community Survey [ACS]).

Between the 2000 Census and the 2004 ACS, the County's housing supply increased by nearly 9 percent, from 474,800 housing units to 516,000 units. The vacancy rate increased from 4.5 percent in 2000 to 5.4 percent in 2004. The median home value in the County was \$144,200 at the time of the 2000 Census, while the median household income was \$43,800. Property values have risen sharply since 2000. According to the National Association of Realtors, the median value of homes in the Sacramento metropolitan area, which includes Arden-Arcade and Roseville, was \$376,200 as of the first quarter 2006, a 160 percent increase over year 2000 values (NAR 2006).

The City of Sacramento's housing supply increased by nearly 10 percent between 2000 and 2004, from 164,000 to 180,000 units. The vacancy rate increased in this period from 5.7 to 6.2 percent. The median home value was \$128,800 in the year 2000. By the time of the 2004 ACS, the median home value had nearly doubled to \$253,400 (US Bureau of the Census 2000; US Bureau of the Census 2004).

Between 2000 and 2006, the City of Rancho Cordova's housing supply increased from 21,600 to 22,300: a 3.2 percent increase. The city's vacancy rate fell by one percent in this time, to 4.5 percent. Median home value in Rancho Cordova increased 173 percent between 2000 and 2004, from \$116,500 to \$317,000 (US Bureau of the Census 2000; City of Rancho Cordova 2005).

2.3.1.6 Projections of Housing Stock

According to SACOG, housing units in Sacramento County are projected to increase by 28 percent from 518,400 in 2005 to 662,000 in 2025 (Table 2.3-3). Out of the total projected housing increase between 2005 and 2025, 49 percent is estimated to occur within the unincorporated areas of the County and the City of Rancho Cordova, 24 percent in the City of Sacramento, 19 percent in the City of Elk Grove and the remainder in other cities, including 5 percent growth in Folsom.

2.3.1.7 Community Cohesion

“Community cohesion” is the degree to which residents have a sense of belonging to their neighborhood or a strong attachment to neighbors, local groups or institutions, usually as a result of continued association over time. Cohesion refers to the degree of interaction among the individuals, groups, and institutions that make up a community. This interaction can be affected by the location of physical and psychological barriers, such as water bodies, transportation routes, political boundaries, or informally established neighborhood lines. High levels of cohesiveness are often associated with areas that have low residential turnover rates and residents who have lived in a neighborhood for many years.

Barriers to Interaction

Within the project’s limits, US 50 serves as a dividing line between north and south. The freeway is elevated through downtown Sacramento, and north-south streets pass under it. Exceptions include 12th, 13th, 14th, and 17th Streets. Farther east, the freeway is a more substantial barrier: major surface streets (such as Howe and Watt Avenues) cross it at interchanges, some smaller streets have over- or under-crossings, and there are two pedestrian over crossing (POC) structures. Otherwise, it is a barrier to north-south movement.

Indicators of Neighborhood Stability

All of the neighborhoods in the Study Area have at least one neighborhood association that is actively engaged with the city in solving community problems. Several of the neighborhoods in the Study Area have unusually high proportions of residents who have either lived in their homes for five years (as of the 2000 Census) or who are owner-occupants of their homes. Neighborhoods with above-average (here defined as half a standard deviation or more above the mean) levels of residents in one of these categories include Upper Land Park, Land Park, Curtis Park, Poverty Ridge, the Newton-Booth / Alhambra Triangle area, East Sacramento, Elmhurst, Tahoe Park, Tahoe Park East, Arden-Arcade, Rosemont, College / Glen, La Riviera, and several block groups in Rancho Cordova.

2.3.1.8 Employment

The employment profile in the Study Area closely mirrors the types of businesses that are located in the region. Although a large portion of the County is dedicated to farming activities, the County relies on service industries as its economic base. Of Sacramento County’s total employed civilian population of 545,900 (those over 16 years of age), approximately 36.3 percent were employed in the Management, Professional, and Related occupations, 29.9 percent in the Sales and Office occupations, 14.5 percent in the Service occupations, 10.2 percent in the Production, Transportation, and Material Moving occupations, 8.7 percent in the Construction, Extraction, and Maintenance occupations, and 0.4 percent in the Farming, Fishing, and Forestry occupations. Similarly, the Study Area’s employment breakdown by occupation closely corresponds to that of the County’s, as illustrated in Table 2.3-4

Year 2000 Census data for civilian unemployment rates in the County, Study Area, City of Sacramento and City of Rancho Cordova were 4.2 percent, 4.5 percent, 4.7 percent and 4.7 percent, respectively (Table 2.3-5). According to SACOG projections up to 2025, job growth is expected to outpace population growth.

2.3.1.9 Tax Revenue

In the Study Area, tax revenue is generated through a combination of property taxes, business taxes, and sales tax. According to the County of Sacramento's Assessors Office 2005-2006 Annual Report, the total assessed value of all property and property assets (the primary tax base in the Study Area) was estimated at \$109.3 billion.

2.3.1.10 Labor Force Characteristics

In the Study Area, approximately 64.5 percent of the 118,000 residents over 16 years of age were employed. Ninety-three percent were employed in the civilian labor force, with seven percent in the armed services. Labor force characteristics are presented in Table 2.3-5.

2.3.1.11 Project Area Businesses

Several large employers are situated within a half-mile of the freeway in the Study Area, including:

- UC Davis Medical Center and Children's Hospital, Sacramento: 6,500 employees
- Sacramento Municipal Utility District Customer Service Center, Sacramento: 2,000 employees
- California State University, Sacramento: 1,600 employees, 28,000 students
- California State Franchise Tax Board, Rancho Cordova: 6,500 employees
- Bank of America, Rancho Cordova: 1,500 employees
- GenCorp (Aerojet), Highway 50 and Aerojet Road: 1,650 employees
- Verizon Wireless, Folsom: 1,000 employees
- Intel Corporation, Folsom: 6,500 employees
- El Dorado Hills Business Park: approximately 5,000 employees, including 1,100 at Blue Cross Blue Shield and 1,300 at DST Output

2.3.1.12 Workforce Mobility

Sacramento County

In 2000, 75 percent of County workers commuted to work in single occupant vehicles, 14 percent used carpools, 3 percent used public transit, 2 percent walked to work, and 3 percent worked at home. The average commute time for workers living in the county was 25.4 minutes (Table 2.3-6), compared to 27.7 minutes statewide.

At the time of the 2004 ACS, 78 percent of County residents were commuting in single occupant vehicles and the proportion in carpools had fallen to 11 percent. The proportion of workers taking public transit remained the same (3 percent), as did the proportion of workers walking to work (2 percent). In 2004, 4 percent of workers worked at home. Average commute time had increased to 26 minutes by the time of the 2004 ACS; the statewide average fell to 27.1 minutes (US Bureau of the Census 2004).

In 2000, 91 percent of workers living in Sacramento County worked in the Sacramento Metropolitan Statistical Area (MSA). Eighty-five percent worked somewhere in Sacramento County, and 41 percent worked in the City of Sacramento (Table 2.3-7).

City of Sacramento

The City of Sacramento's workforce numbered about 185,000 workers in the year 2000, or 60 percent of the population. Seventy-one percent of workers commuted to work in single occupant vehicles, 16 percent were in carpools, 5 percent of workers used public transit, 3 percent walked to work, and 3 percent worked at home. The average commute time for workers living in the city was 23.4 minutes.

Between the 2000 Census and the 2004 ACS, the proportion of workers commuting alone increased to 78 percent. The proportion commuting in carpools fell to 11 percent. Public transit use also fell, to 3 percent.

Ninety percent of the city's workforce worked in the Sacramento MSA in the year 2000. Eighty-eight percent of the city's workforce worked somewhere in the County, and 60 percent worked in the city.

Rancho Cordova

In 2000, 74 percent of Rancho Cordova's workers drove to work alone, 15 percent carpooled, 4 percent of workers used public transit, 2 percent walked, and 3 percent worked at home. The average commute time for workers living in Rancho Cordova was 22.5 minutes.

Ninety-three percent of Rancho Cordova's workforce worked in the Sacramento MSA. Eighty-eight percent worked in Sacramento County. Twenty-seven percent worked in Rancho Cordova and another 27 percent worked in the City of Sacramento.

Study Area Census Tracts

Seventy-one percent of the nearly 70,000 workers living in the Study Area commuted in single-occupant vehicles; 13 percent were in carpools and 6 percent used public transit to get to work.

The average commute time for workers living in the Study Area was approximately 21 minutes. Average commute time in the Study Area is several minutes shorter than the average for workers in Sacramento, Rancho Cordova, or Sacramento County. This is likely to be the result of a combination of factors, including the number of large employers within the Study Area itself, and that most Study Area residents live within a mile of US 50.

Folsom

Folsom is east of the Study Area, but 21 percent of its 25,000 workers commute into the City of Sacramento. In 2000, 79 percent of Folsom's workforce commuted in single-occupant vehicles, 10 percent used carpools, and 1 percent used transit. However, this proportion is likely to have increased in recent years, since Regional Transit's light rail line has been extended to Folsom. The average commute time for workers living in Folsom was 27.7 minutes in 2000.

Ninety-four percent of Folsom's workforce worked in the Sacramento MSA, and 84 percent worked in Sacramento County. In the year 2000, more of Folsom's workers worked in Folsom (33 percent) than in the City of Sacramento (21 percent).

El Dorado County

El Dorado County is well east of the Study Area. And like Folsom, the cities in western El Dorado County are within commuting distance to downtown Sacramento along US 50. At the same time, Census data indicate that downtown Sacramento may be decreasing in importance to workers living in El Dorado County. While the county's workforce increased by 25 percent between 1990 and 2000, the number of people working in downtown Sacramento increased by only 0.4 percent. The proportion of workers commuting to Sacramento fell from 12 percent in 1990 to 9 percent in 2000.

Sacramento continues to be a major destination for workers based in El Dorado County's westernmost city, El Dorado Hills. In the year 2000, 19 percent of this community's labor force worked in Sacramento, representing a nearly 100-percent increase over the number of El Dorado Hills commuters working in Sacramento in 1990. However, El Dorado's workforce increased by nearly 200 percent in this period, indicating that, proportionally, the number of Sacramento-bound commuters fell: it had been 29 percent in 1990.

In 2000, 81 percent of El Dorado Hills labor force commuted in single-occupant vehicles, 9 percent in carpools, 1 percent of workers used public transit, 1 percent walked, and 7 percent worked at home. The average commute time for El Dorado Hills' workers was 31.6 minutes in 2000.

2.3.2 Environmental Consequences

2.3.1.13 Neighborhood Impacts

Community Cohesion

Generally speaking, the effects of transportation projects on community cohesion may be beneficial or adverse, and may include splitting neighborhoods, isolating a portion of a neighborhood or an ethnic group, generating new development, changing property values, or separating residents from community facilities. Noise, pedestrian safety, changes in property value, and changes in visual quality are all inexorably linked to the opportunities for – and perhaps more importantly the quality of – social life within a neighborhood.

Build Alternatives

Noise

The proposed project would not likely perceptibly change noise levels in the Study Area. The Noise Impact Study Report states that “noise level increases would not be considered substantial” within the Study Area. Additionally, because traffic noise levels along US 50 are already over acceptable limits, the Noise Impact Study Report evaluated the effects of 22 potential noise barriers. Eleven noise barriers are proposed; 10 under Alternative 10D-3 and 11 under Alternative 10D-1. If implemented, noise barriers would have positive effects on the adjacent neighborhoods. See Chapter 2.13.

Pedestrian Safety

See the discussion in Chapter 2.5, Traffic and Transportation.

Property Values

See the discussion in Section 2.3.2.7 below.

Visual Quality

Alternative 10D-1 and 10D-3’s impacts to views of the freeway in downtown Sacramento would be barely perceptible. East of the Oak Park Interchange, adverse visual impacts would be minimal (see Section 2.6).

2.3.1.14 Household Impacts

No residential or commercial relocations would occur as a result of this project. No driveway modifications would occur as a result of this project.

2.3.1.15 Business Displacement

Build Alternatives

No businesses would be displaced as a result of the proposed project.

Both build alternatives would require the acquisition of small sections of three business-zoned parcels near the Zinfandel Road interchange in the City of Rancho Cordova. Currently, these parcels are not utilized for any purposes; acquisition of a small portion of these parcels would not likely affect business operations on the parcels in question. A small grass slope at the northern boundary of the Marriott Fairfield Inn would be acquired (portions of APNs 072-0210-093 and 072-0210-096). Also an unimproved lot adjacent to the Bridal Mart and the Marriott Residence Inn would be acquired (a portion of APN 072-0610-064).

2.3.1.16 Travel Time Savings

Alternative 10D-1

Alternative 10D-1 would improve travel times for drivers in the proposed bus/carpool lanes. In 2010, a carpool or bus full of commuters using westbound US 50 for the 13-mile length of the project during the morning commute would each save about 15.0 minutes under Alternative 10D-1 compared to driving solo in the mixed-flow lanes (MFL).

Economists generally assume that travel time is worth about 60 percent of the prevailing wage. According to the State Employment Development Department, the prevailing hourly wage in the Sacramento MSA in the first quarter of 2005 was \$20.20, for an hourly travel time value of \$12.12.

Based on this information, if Alternative 10D-1 were constructed, each commuter using the bus/carpool lane in 2010 to commute from Sunrise Boulevard to the US 50 / SR 99 Interchange (the Oak Park Interchange) during the morning peak hour would see a travel time savings per commute worth approximately \$3.03, compared to a driver in the MFL.

Similarly, during the evening commute a carpool or bus full of commuters in the eastbound bus/carpool lane in 2010 would each save nearly 19 minutes on the trip from downtown to Sunrise Boulevard, compared to MFL drivers (Alternative 10D-1). The value of this time savings can be estimated at \$3.78 per commuter, for a total savings of \$6.81 per day per commuter (both directions).

The Traffic Report estimates that 1,100 vehicles would use a westbound bus/carpool lane during the morning commute in 2010, with an average occupancy of 2.25 people. Multiplying the individual savings derived above by the estimated 2,475 commuters anticipated to use the bus/carpool lane during the morning commute results in a total savings of approximately \$7,500. The total savings for eastbound commuters during the evening peak hour would be on the order of \$8,000.

2.3.1.17 Regional Economy

Build Alternatives

Generally speaking, the project would be expected to have a positive impact on the regional economy. The project would improve travel times through the Study Area for vehicles in the bus/carpool lanes and vehicles in the mixed-flow lanes, including inter-regional freight carriers. No data specific to the number of inter-regional freight vehicles using the corridor during peak hours are available. The project would also improve the people carrying capacity of the transportation corridor, thus maximizing the effectiveness of the public's investment in the US 50 corridor.

2.3.1.18 Fiscal Impacts

Build Alternatives

Property Tax

The proposed project would require a minor reduction in property tax revenue to Sacramento County because of the acquisition of small sections of private property. Given the overall amount of Sacramento County's total property tax revenue, the reduction in revenue would be negligible. The acquisition of private property for the project right-of-way would make the property public, and therefore not subject to taxes.

Sales Tax

The proposed project will not impact any business operations in the Study Area. Sales tax revenues from businesses in the Study Area would remain unchanged.

2.3.1.19 Property Values

Build Alternatives

The proposed project is not likely to have a substantial impact on any of the factors that currently influence property values in the Study Area.

Property values are based on a complicated interaction of factors, including statewide and national economic conditions, consumer tastes and trends, and the desirability of individual locations. Transportation facilities can, generally speaking, improve property values by improving access, business productivity, or travelers' safety, or reduce them by substantially increasing noise levels, affecting community cohesion, or reducing an area's visual quality. As seen in Section 2.3.2.1, the project is not anticipated to result in substantial decreases in visual quality or increases in noise levels. Impacts to community cohesion are also expected to be minor.

2.3.1.20 Construction Impacts

Build Alternatives

Project construction would not be likely to have a substantial effect on the local or regional economy. Construction delays may have a minor and temporary effect on travel times.

Detours and Ramp Closures

Both proposed alternatives would require temporary ramp closures at the US 50 interchanges with Zinfandel Drive and Mather Field Road. All alternatives would also require temporary closure of the freeway between Zinfandel Drive and Mather Field Road during the replacement of the White Rock POC and between Watt Avenue and Bradshaw Road during the replacement of the Manlove POC. Because these closures would be temporary and during off-peak hours, impacts to the local and regional economy would be minimal.

2.3.3 Environmental Justice

On February 11, 1994, President Clinton signed Executive Order (EO) 12898, Federal Actions to Address Environmental Justice (EJ) in Minority and Low-Income Populations (59 FR 7629). EO 12898 requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of federal programs on minority or low-income populations. The general purpose of EO 12898 is to foster non-discrimination in federal programs and to provide minority and low-income communities greater opportunities for public participation in and access to public information regarding human health and environmental issues (USDOT 1994). Potential EJ areas are identified in the alternatives screening process to ensure that these communities have access to concise and clear information sufficient to effectively participate in the public involvement process. This helps to ensure that these communities are not disproportionately affected by a project. EJ in transportation projects is about striving to ensure that minority and low-income populations get an equal share of the transportation benefits without carrying the brunt of the burdens.

EO 12898 was designed to supplement Title VI of the Civil Rights Act of 1964 and the resulting regulations for the US Department of Transportation (USDOT) implementing this Act. Title VI prohibits discriminatory practices in programs receiving federal funding (USDOT 1994). In addition, more than 30 federal statutes, regulations, executive orders, and directives regarding nondiscrimination supplement EO 12898. Appendix B contains a copy of the Caltrans Title VI policy statement.

A general approach for identifying potential EJ areas involves the use of comprehensive demographic information, normally US Census Bureau data. For this report, Census data for the Year 1990 and Year 2000 were used to identify minority and low-income populations. Supplemental data from SACOG were used to augment the Year 1990 and Year 2000 Census data, as appropriate. The Census Tract (CT) level data, instead of the census block group or block level, was used because it provides the best

combination of demographic accuracy and data accessibility for the Study Area. Once identified, the locations of EJ areas are then compared to areas in which environmental and socioeconomic impacts are predicted to occur to determine if these communities will be disproportionately affected compared to other nearby non-EJ areas. If disproportionate impacts were identified in this process, mitigation to alleviate those impacts to those communities would be recommended.

In order for a locale to be considered a potential EJ area of concern, either the minority or low-income population of the Study Area must be “meaningfully greater” than that of the Study Area. Any Census tracts with a percentage of residents above the minority or low-income thresholds established for the Study Area are identified as potential EJ areas of concern.

Minority Populations

According to the US Bureau of Census, minority populations are those groups that include Black or African Americans, American Indians or Alaskan Natives, Asians, Native Hawaiian or Other Pacific Islanders, Hispanic or Latinos, and other races. These population categories were used to determine the minority percentage for each CT in the Study Area. In order to equally compare the numbers from the Year 1990 and Year 2000 Census, residents identifying themselves as Asians, Native Hawaiians or Other Pacific Islanders for the Year 2000 Census were combined into one data set (these race categories were not disaggregated in the 1990 Census). Also, the “Other Race” and “Two or More Race” sub categories for the Year 2000 Census were joined together. As indicated in Table 2.3-2, Hispanic or Latino residents may be members of any race.

These population categories were used to determine the minority percentage for the Study Area Census Tracts, as well as for the Study Area as a whole.

For the purposes of this analysis, thresholds were used to determine the minority population EJ areas of concern, instead of an absolute number. These thresholds are based on percentages of minority populations and reflect the composition of minorities in the Study Area more appropriately than would the use of absolute numbers. Table 2.3-8 identifies the minority population percentages for the Study Area CTs and Sacramento County. A CT with a minority population greater than the average minority population of the Study Area would be considered to be a minority population EJ area of concern.

In 1990, members of minority groups accounted for approximately 25 percent of the Study Area, which is similar to the number of minority groups in all of Sacramento County for that year. However, in 2000 the proportion of residents in minority groups rose to nearly 34 percent of the Study Area versus 36 percent of Sacramento County. According to Table 2.3-8 for Year 1990, sixteen of the 36 CTs had minority group populations that were more than one standard deviation above average for the Study Area. These tracts included: CT 9, CT 12, CT 13, CT 18, CT 19, CT 20, CT 21, CT 22, CT 26, CT 27 and CT 29 near the west end of the Study Area, in the City of Sacramento; CT 91.10 and CT 91.08 near the central section of the Study Area; and CT 88, CT 90.01, CT 90.03, CT 91.08 and CT 91.10 near the west end of the Study Area. Similar results were found after analyzing the 2000 data. Fifteen of the 41 CTs had proportions of minority residents more than one standard deviation from the Study Area's average. They are CT 9, CT 12, CT 17, CT 18, CT 19, CT 21, CT 22, CT 27, CT 29 and CT 52.01, near the west end of the Study Area, in the City of Sacramento; CT 91.05, and CT 91.10 in the Sacramento County; and CT 88, CT 90.07 and CT 90.09 on the east end of the Study Area, in the City of Rancho Cordova.

Minority populations are present in the Study Area, and EO 12898 directs the project's government sponsors to determine whether the project could subject these populations to disproportionate adverse impacts.

Low-Income Populations

There are two options for defining low-income populations: an absolute median household income level (e.g., \$15,000 based on US Census data) or poverty status (using the US Department of Health and Human Services Poverty Guidelines). The poverty status guidelines establish a national poverty number for the 48 contiguous states, with separate figures for Alaska and Hawaii, and vary depending on the size of the family unit. For example, the 1999 Health and Human Services Poverty Guidelines range from \$8,240 (with a one-person family unit) to \$32,170 (with an eight person family unit) (HHS 2005). For the purposes of this analysis, low-income is defined based on the 1989 and 1999 Health and Human Services Poverty Guidelines for a family of four within the 48 contiguous states at \$12,100 and \$16,700, respectively. The \$12,100 and \$16,700 numbers are then compared to the Study Area median household income numbers to determine low-income population EJ areas of concern.

Table 2.3-9 shows median household income data for the Year 1990 and Year 2000 Study Area CTs and Sacramento County. Based on the median household income data in this table, only one CT qualifies for low-income status, CT 88 in Year 2000. When compared to the 1989 and 1999 Health and Human Services Poverty Guidelines for a family of four within the 48 contiguous states, low-income populations have been identified or have the potential to be disproportionately affected by the proposed project as discussed in EO 12898 regarding environmental justice.

Public Involvement

The proposed project has had wide-based and continual public participation activities throughout, as discussed in Chapter 4.

Effects

As discussed above, minority and low-income populations are found in the Study Area. As opposed to a newly constructed alignment, the alteration of an existing freeway in a built environment has the potential for fewer types of local impacts. For instance, it would not divide an established community or result in displacement/relocation impacts. Potential impacts to neighboring populations can include noise, air quality, visual/aesthetic impacts, isolated traffic volume increases, and increased delay times for bicyclists and pedestrians. Noise, air quality, and visual impacts were evaluated and addressed in separate studies, the results of which are summarized below.

All Build Alternatives

Noise and air quality impacts are distributed evenly through the Study Area and are not concentrated in any area of minority or low-income residents. Noise abatement measures are being assessed for most of the neighborhoods along the freeway, in both EJ areas and non-EJ areas. Visual/aesthetic impacts from the proposed project are limited to the already disturbed freeway corridor in both EJ and non-EJ areas. The proposed project is not expected to have adverse impacts on air quality in the region; no adverse air quality impacts would exclusively affect EJ areas. Impacts related to construction would similarly occur all along the US 50 corridor, adjacent to both EJ and non-EJ areas.

Conclusion

Based on the above discussion, the proposed project would not have disproportionately high or adverse effects on any minority or low-income populations, as discussed in E.O. 12898 regarding EJ.

Table 2.3-1. Study Area Population, Household, and Income Statistics

Attribute	Sacramento County	Study Area CTs	City of Sacramento	City of Rancho Cordova
POPULATION				
Total Population (1990)	1,041,219	151,978	369,365	48,731
Total Population (2000)	1,223,499	147,515	407,018	55,060
Percent Change 1990-2000	17.5%	-2.9%	10.2%	13.0%
Percent Change 2000-2025	41.0%	-2.9%	32.3%	207.1%
Total Population (2025, estimated)	1,725,710	143,286	538,303	169,081
HOUSEHOLDS				
Total Households (1990)	394,530	63,577	144,444	18,156
Total Households (2000)	453,602	64,221	154,581	20,407
Percent Change 1990-2000	15%	1%	7%	12%
Average Household Size (1990)	NA	NA	NA	NA
Average Household Size (2000)	2.64	2.32	2.57	2.68
INCOME				
Median Household Income (in \$)	\$43,816	\$38,495	\$37,049	\$40,095
Per Capita Income (in \$)	\$21,142	\$21,891	\$18,721	\$18,121
Number of Persons Below Poverty Level	169,784	23,548	79,737	8,649

Table 2.3-2. Census 2000 Racial Ethnic Composition of the Study Area

Attribute	Sacramento County		Study Area CTs		City of Sacramento		City of Rancho Cordova	
		% of Total Population		% of Total Population		% of Total Population		% of Total Population
White	783,240	64%	97,814	66%	196,549	48.3%	36,704	66.7%
Black or African American	121,804	10%	15,228	10%	62,968	15.5%	6,245	11.3%
American Indian and Alaska Native	13,359	1%	1,614	1%	5,300	1.3%	521	0.9%
Asian	134,899	11%	14,256	10%	67,635	16.6%	4,537	8.2%
Native Hawaiian and Other Pacific Islander	7,264	1%	678	0%	3,861	0.9%	300	0.5%
Some other race	91,541	7%	9,444	6%	44,627	11%	3,151	5.7%
Two or more races	71,392	6%	8,481	6%	26,078	6.4%	3,602	6.5%
Hispanic or Latino (of any race)	195,890	16%	20,839	14%	87,974	21.6%	7,100	12.9%
Total Population (excluding Hispanic or Latino of any race)	1,223,499	100%	147,515	100%	407,018	100%	55,060	100%

Source: US Census 2000 (STF1)

Table 2.3-3. Census 2000 Housing Characteristics

Attribute	Sacramento County	Study Area CTs	City of Sacramento	City of Rancho Cordova
Total Housing Units	474,814	67,939	163,957	21,584
Density of Housing Units per square mile of land area	492	2,774	1,688	959
Occupied Units	453,602	64,221	154,581	20,407
Vacancy Rate (%)	4.5%	5.5%	5.7%	5.5%
Median Home Value (\$)	\$144,200	\$136,012	\$128,800	\$116,500

Source: US Census 2000 (STF1)

Table 2.3-4. Employment Profile by Occupation and Industry 2000

Attribute	Sacramento County	%	Study Area CTs	%
Employed civilian population 16 years and over	545,925	100	70905	100
OCCUPATION				
Management, professional, and related occupations	198,004	36.3	28560	40.3
Service occupations	79,285	14.5	10128	14.3
Sales and office occupations	163,268	29.9	21010	29.6
Farming, fishing, and forestry occupations	2,205	0.4	186	0.3
Construction, extraction, and maintenance	47,691	8.7	4894	6.9
Production, transportation, and material moving	55,472	10.2	6127	8.6
Totals:	545,925	100	70,905	100
INDUSTRY				
Agriculture, forestry, fishing and hunting, and mining	3,890	0.7	274	0.4
Construction	37,223	6.8	3868	5.5
Manufacturing	39,115	7.2	4673	6.6
Wholesale trade	18,741	3.4	2193	3.1
Retail trade	62,702	11.5	7331	10.3
Transportation and warehousing, and utilities	25,280	4.6	2776	3.9
Information	20,910	3.8	3012	4.2
Finance, insurance, real estate, and rental and	46,715	8.6	6210	8.8
Professional, scientific, management, administrative,	56,352	10.3	8324	11.7
Educational, health and social services	100,629	18.4	13404	18.9
Arts, entertainment, recreation, accommodation and	38,835	7.1	5897	8.3
Other services (except public administration)	28,273	5.2	3545	5.0
Public administration	67,260	12.3	9378	13.2
Totals:	545,925	100	70,885	100

Table 2.3-5. Census 2000 Employment Status

Attribute	Sacramento County		Study Area CTs		City of Sacramento		City of Rancho Cordova	
		%		%		%		%
Population 16 years and over	921,897	100	118,240	100	307,682	100	40,808	100
In labor force	587,086	63.7	76,409	64.6	184,829	60.1	26,365	64.6
Civilian labor force	584,886	63.4	76,238	64.5	184,330	59.9	26,244	64.3
Civilian-Employed	545,925	59.2	70,905	60.0	169,787	55.2	24,319	59.6
Civilian-Unemployed	38,961	4.2	5,333	4.5	14,543	4.7	1,925	4.7
Armed Forces	2,200	0.2	171	0.1	499	0.2	121	0.3
Not in labor force	334,811	36.3	41,831	35.4	122,853	39.9	14,443	35.4

Source: US Census 2000 (STF3)

Table 2.3-6. Census 2000 Commute Data

Attribute	Sacramento County		Study Area CTs		City of Sacramento		City of Rancho Cordova	
		%		%		%		%

Commuting to Work

Workers 16 years and over	536,310	100	69,882	100	166,419	100	24,047	100
Car, truck, or van - - drove alone	404,130	75.4	49,925	71.4	118,182	71	17,713	73.7
Car, truck, or van - - carpooled	77,021	14.4	8,858	12.7	27,126	16.3	3,658	15.2
Public transportation (including taxicab)	16,502	3.1	4,015	5.7	7,681	4.6	877	3.6
Walked	10,999	2.1	2,684	3.8	4,602	2.8	517	2.1
Other means	9,368	1.7	2,085	3.0	3,953	2.4	642	2.7
Worked at home	18,290	3.4	2,315	3.3	4,875	2.9	640	2.7
Mean travel time to work (minutes)	25.4	NA	21.2	NA	23.4	NA	22.5	NA

Source: US Census 2000 (STF3)

Table 2.3-7. Census 2000 Place of Work

Attribute	Sacramento County		Study Area CTs		City of Sacramento		City of Rancho Cordova	
		%		%		%		%
Workers 16 years and over:	536,310	100.0	69,882	100.0	166,419	100.0	24,047	100.0
Living in an MSA/PMSA:	536,310	100.0	69,882	100.0	166,419	100.0	24,047	100.0
Living in a central city:	166,419	31.0	34,899	49.9	166,419	100.0	0	0.0
Worked in MSA/PMSA of residence:	150,552	28.1	31,970	45.7	150,552	90.5	0	0.0
Central city	100,101	18.7	21,888	31.3	100,101	60.1	0	0.0
Remainder of this MSA/PMSA	50,451	9.4	10,082	14.4	50,451	30.3	0	0.0
Worked outside MSA/PMSA of residence:	15,867	3.0	2,929	4.2	15,867	9.5	0	0.0
Worked in a different MSA/PMSA:	15,434	2.9	2,827	4.0	15,434	9.3	0	0.0
Central City	5,553	1.0	1,097	1.6	5,553	3.3	0	0.0
Remainder of a different MSA/PMSA	9,881	1.8	1,730	2.5	9,881	5.9	0	0.0
Worked outside any MSA/PMSA	433	0.1	102	0.1	433	0.3	0	0.0
Living in a remainder of an MSA/PMSA:	369,891	69.0	34,983	50.1	0	0.0	24,047	100.0
Worked in MSA/PMSA of residence:	337,516	62.9	32,600	46.7	0	0.0	22,319	92.8
Central city	118,651	22.1	11,413	16.3	0	0.0	6,444	26.8
Remainder of this MSA/PMSA	218,865	40.8	21,187	30.3	0	0.0	15,875	66.0
Worked outside MSA/PMSA of residence:	32,375	6.0	2,383	3.4	0	0.0	1,728	7.2
Worked in a different MSA/PMSA:	30,910	5.8	2,298	3.3	0	0.0	1,658	6.9
Central City	11,596	2.2	721	1.0	0	0.0	575	2.4
Remainder of a different MSA/PMSA	19,314	3.6	1,577	2.3	0	0.0	1,083	4.5
Worked outside any MSA/PMSA	1,465	0.3	85	0.1	0	0.0	70	0.3

Source: U.S. Census 2000 (SF3)

Table 2.3-8. Environmental Justice Ethnic Population Analysis

Year	Census Tracts	Total		White		African American		American Indian, Eskimo, & Aleutian		Asian or Pacific Islander		Other		Total %	Latino	
			%		%		%		%		%		%			
1990	8.00	1,594	100.0	1,420	89.1	60	3.8	14	0.9	55	3.5	45	2.8	100.0	131	8.2
2000	8.00	1,511	100.0	1,300	86.0	58	3.8	11	0.7	72	4.8	70	4.6	100.0	115	7.6
1990	9.00	275	100.0	176	64.0	53	19.3	3	1.1	31	11.3	12	4.4	100.0	48	17.5
2000	9.00	288	100.0	184	63.9	28	9.7	4	1.4	30	10.4	42	14.6	100.0	74	25.7
1990	12.00	3,116	100.0	2,320	74.5	419	13.4	62	2.0	148	4.7	167	5.4	100.0	404	13.0
2000	12.00	3,009	100.0	2,135	71.0	296	9.8	66	2.2	146	4.9	366	12.2	100.0	435	14.5
1990	13.00	3,298	100.0	2,382	72.2	350	10.6	59	1.8	224	6.8	283	8.6	100.0	553	16.8
2000	13.00	3,165	100.0	2,304	72.8	227	7.2	49	1.5	155	4.9	430	13.6	100.0	482	15.2
1990	15.00	4,645	100.0	4,248	91.5	90	1.9	23	0.5	108	2.3	176	3.8	100.0	386	8.3
2000	15.00	4,569	100.0	4,032	88.2	72	1.6	41	0.9	153	3.3	271	5.9	100.0	399	8.7
1990	16.00	5,153	100.0	4,823	93.6	65	1.3	37	0.7	131	2.5	97	1.9	100.0	342	6.6
2000	16.00	4,987	100.0	4,410	88.4	73	1.5	33	0.7	141	2.8	330	6.6	100.0	410	8.2
1990	17.00	4,936	100.0	4,070	82.5	363	7.4	62	1.3	157	3.2	284	5.8	100.0	588	11.9
2000	17.00	4,853	100.0	3,604	74.3	417	8.6	82	1.7	199	4.1	551	11.4	100.0	718	14.8
1990	18.00	5,613	100.0	2,503	44.6	1,472	26.2	113	2.0	846	15.1	679	12.1	100.0	1,166	20.8
2000	18.00	5,343	100.0	2,281	42.7	1,211	22.7	112	2.1	699	13.1	1,040	19.5	100.0	1,244	23.3
1990	19.00	3,124	100.0	1,913	61.2	400	12.8	45	1.4	377	12.1	389	12.5	100.0	625	20.0
2000	19.00	2,871	100.0	1,772	61.7	309	10.8	49	1.7	272	9.5	469	16.3	100.0	553	19.3
1990	20.00	2,876	100.0	966	33.6	246	8.6	43	1.5	1,451	50.5	170	5.9	100.0	333	11.6
2000	20.00	2,685	100.0	965	35.9	168	6.3	31	1.2	1,198	44.6	323	12.0	100.0	460	17.1
1990	21.00	2,457	100.0	813	33.1	254	10.3	22	0.9	1,104	44.9	264	10.7	100.0	566	23.0
2000	21.00	2,587	100.0	941	36.4	275	10.6	22	0.9	868	33.6	481	18.6	100.0	568	22.0
1990	22.00	4,876	100.0	1,616	33.1	805	16.5	59	1.2	1,968	40.4	428	8.8	100.0	738	15.1
2000	22.00	4,229	100.0	1,498	35.4	912	21.6	50	1.2	1,222	28.9	547	12.9	100.0	627	14.8
1990	23.00	3,084	100.0	2,669	86.5	32	1.0	14	0.5	270	8.8	99	3.2	100.0	265	8.6
2000	23.00	3,180	100.0	2,625	82.5	46	1.4	20	0.6	256	8.1	233	7.3	100.0	341	10.7
1990	26.00	2,594	100.0	1,908	73.6	293	11.3	28	1.1	115	4.4	250	9.6	100.0	414	16.0
2000	26.00	2,756	100.0	1,880	68.2	274	9.9	43	1.6	136	4.9	423	15.3	100.0	466	16.9
1990	27.00	4,020	100.0	1,296	32.2	1,317	32.8	60	1.5	596	14.8	751	18.7	100.0	1,036	25.8
2000	27.00	3,921	100.0	1,310	33.4	1,260	32.1	77	2.0	273	7.0	1,001	25.5	100.0	1,212	30.9
1990	29.00	4,845	100.0	3,837	79.2	248	5.1	55	1.1	220	4.5	485	10.0	100.0	873	18.0
2000	29.00	4,789	100.0	3,373	70.4	273	5.7	90	1.9	235	4.9	818	17.1	100.0	1,092	22.8
1990	52.01	3,090	100.0	2,105	68.1	286	9.3	33	1.1	531	17.2	135	4.4	100.0	267	8.6
2000	52.01	7,140	100.0	5,239	73.4	451	6.3	86	1.2	637	8.9	727	10.2	100.0	976	13.7
1990	52.02	3,461	100.0	2,990	86.4	108	3.1	23	0.7	257	7.4	83	2.4	100.0	264	7.6
2000	52.02	2,770	100.0	1,452	52.4	337	12.2	32	1.2	442	16.0	507	18.3	100.0	579	20.9
1990	52.03	7,420	100.0	6,291	84.8	497	6.7	62	0.8	425	5.7	145	2.0	100.0	666	9.0
2000	52.03	3,178	100.0	2,441	76.8	137	4.3	24	0.8	327	10.3	249	7.8	100.0	360	11.3
1990	54.03	2,395	100.0	2,154	89.9	76	3.2	11	0.5	136	5.7	18	0.8	100.0	84	3.5
2000	54.03	2,272	100.0	1,945	85.6	26	1.1	5	0.2	215	9.5	81	3.6	100.0	156	6.9
1990	54.04	5,632	100.0	5,164	91.7	111	2.0	24	0.4	303	5.4	30	0.5	100.0	208	3.7
2000	54.04	5,600	100.0	4,700	83.9	135	2.4	19	0.3	508	9.1	238	4.3	100.0	258	4.6
1990	88.00	4,885	100.0	3,605	73.8	840	17.2	33	0.7	279	5.7	128	2.6	100.0	369	7.6
2000	88.00	914	100.0	402	44.0	118	12.9	21	2.3	82	9.0	291	31.8	100.0	139	15.2
1990	89.03	8,277	100.0	6,784	82.0	719	8.7	88	1.1	527	6.4	159	1.9	100.0	650	7.9
2000	89.09 (89.03)	5,003	100.0	3,467	69.3	413	8.3	56	1.1	378	7.6	689	13.8	100.0	730	14.6
2000	89.10 (89.03)	5,235	100.0	3,861	73.8	415	7.9	34	0.6	407	7.8	518	9.9	100.0	541	10.3
2000	89.11 (89.03)	4,986	100.0	3,818	76.6	413	8.3	41	0.8	245	4.9	469	9.4	100.0	593	11.9
1990	89.05	4,951	100.0	3,989	80.6	292	5.9	37	0.7	476	9.6	157	3.2	100.0	406	8.2
2000	89.05	2,164	100.0	1,508	69.7	197	9.1	15	0.7	236	10.9	208	9.6	100.0	225	10.4
1990	89.07	4,765	100.0	3,923	82.3	472	9.9	49	1.0	204	4.3	117	2.5	100.0	404	8.5
2000	89.07	3,581	100.0	2,698	75.3	266	7.4	42	1.2	181	5.1	394	11.0	100.0	441	12.3
1990	89.08	4,852	100.0	4,300	88.6	273	5.6	38	0.8	176	3.6	65	1.3	100.0	248	5.1
2000	89.08	2,309	100.0	1,379	59.7	404	17.5	24	1.0	126	5.5	376	16.3	100.0	418	18.1
1990	90.01	7,117	100.0	5,048	70.9	996	14.0	114	1.6	795	11.2	164	2.3	100.0	531	7.5
2000	90.04 (90.01)	3,999	100.0	2,241	56.0	663	16.6	48	1.2	533	13.3	514	12.9	100.0	533	13.3
2000	90.05 (90.01)	3,258	100.0	2,024	62.1	443	13.6	25	0.8	361	11.1	405	12.4	100.0	481	14.8
1990	90.02	6,785	100.0	4,902	72.2	939	13.8	85	1.3	632	9.3	227	3.3	100.0	521	7.7
2000	90.06 (90.02)	4,660	100.0	2,779	59.6	703	15.1	51	1.1	547	11.7	580	12.4	100.0	564	12.1
2000	90.07 (90.02)	2,552	100.0	1,280	50.2	574	22.5	21	0.8	240	9.4	437	17.1	100.0	459	18.0
1990	90.03	6,661	100.0	5,025	75.4	905	13.6	111	1.7	401	6.0	219	3.3	100.0	640	9.6
2000	90.08 (90.03)	5,273	100.0	3,332	63.2	705	13.4	52	1.0	374	7.1	810	15.4	100.0	823	15.6
2000	90.09 (90.03)	3,903	100.0	2,189	56.1	418	10.7	42	1.1	756	19.4	498	12.8	100.0	518	13.3
1990	91.03	3,141	100.0	2,405	76.6	314	10.0	25	0.8	338	10.8	59	1.9	100.0	274	8.7
2000	91.03	3,235	100.0	2,036	62.9	427	13.2	24	0.7	309	9.6	439	13.6	100.0	425	13.1
1990	91.05	3,012	100.0	2,382	79.1	263	8.7	30	1.0	271	9.0	66	2.2	100.0	321	10.7
2000	91.05	2,815	100.0	1,802	64.0	367	13.0	17	0.6	251	8.9	378	13.4	100.0	390	13.9
1990	91.06	4,495	100.0	3,807	84.7	223	5.0	40	0.9	299	6.7	126	2.8	100.0	364	8.1
2000	91.06	4,126	100.0	3,183	77.1	273	6.6	34	0.8	307	7.4	329	8.0	100.0	423	10.3
1990	91.07	3,479	100.0	2,702	77.7	228	6.6	34	1.0	443	12.7	72	2.1	100.0	256	7.4
2000	91.07	3,332	100.0	2,459	73.8	232	7.0	14	0.4	320	9.6	307	9.2	100.0	352	10.6
1990	91.08	3,981	100.0	3,020	75.9	247	6.2	67	1.7	545	13.7	102	2.6	100.0	365	9.2
2000	91.08	3,684	100.0	2,554	69.3	263	7.1	46	1.2	479	13.0	342	9.3	100.0	435	11.8
1990	91.09	5,530	100.0	4,404	79.6	366	6.6	42	0.8	580	10.5	138	2.5	100.0	553	10.0
2000	91.09	5,096	100.0	3,646	71.5	424	8.3	31	0.6	500	9.8	495	9.7	100.0	553	10.9
1990	91.10	1,543	100.0	1,065	69.0	289	18.7	13	0.8	98	6.4	78	5.1	100.0	142	9.2
2000	91.10	1,687	100.0	765	45.3	525	31.1	30	1.8	118	7.0	249	14.8	100.0	271	16.1
1990	Combined Census Tracts	151,978	100.0	113,025	74.4	14,911	9.8	1								

Table 2.3-9. Environmental Justice Low-Income Analysis

Year	Census Tracts	Households	Median Household Income 1989/1999	Per Capita Income	Persons Below Poverty Level
1990	8.00	1,122	\$25,821	\$23,773	109
2000	8.00	996	\$35,652	\$33,978	96
1990	9.00	160	\$33,580	\$22,737	30
2000	9.00	172	\$36,563	\$22,478	12
1990	12.00	2,184	\$14,054	\$13,376	627
2000	12.00	2,245	\$18,341	\$20,693	719
1990	13.00	2,000	\$19,180	\$13,708	617
2000	13.00	2,091	\$26,560	\$27,496	552
1990	15.00	2,262	\$31,680	\$23,924	298
2000	15.00	2,352	\$55,169	\$40,216	284
1990	16.00	2,471	\$35,874	\$22,627	304
2000	16.00	2,538	\$52,880	\$34,388	320
1990	17.00	2,451	\$26,010	\$15,822	478
2000	17.00	2,444	\$40,469	\$25,361	580
1990	18.00	1,992	\$17,093	\$8,456	1,762
2000	18.00	2,003	\$27,694	\$14,983	1,723
1990	19.00	1,625	\$20,262	\$14,331	530
2000	19.00	1,641	\$28,152	\$22,315	464
1990	20.00	1,339	\$16,834	\$9,458	602
2000	20.00	1,318	\$22,831	\$16,089	578
1990	21.00	984	\$15,342	\$7,775	769
2000	21.00	1,063	\$19,375	\$12,443	920
1990	22.00	1,798	\$15,753	\$9,440	2,199
2000	22.00	1,717	\$21,077	\$16,838	1,617
1990	23.00	1,593	\$36,510	\$25,781	97
2000	23.00	1,663	\$52,241	\$34,230	198
1990	26.00	1,184	\$32,462	\$18,945	303
2000	26.00	1,273	\$37,898	\$25,077	540
1990	27.00	1,474	\$13,298	\$7,457	1,622
2000	27.00	1,446	\$18,766	\$10,832	1,500
1990	29.00	2,220	\$26,740	\$14,862	540
2000	29.00	2,245	\$35,651	\$20,182	712
1990	52.01	931	\$12,191	\$5,707	876
2000	52.01	3,230	\$21,058	\$9,636	526
1990	52.02	1,453	\$43,644	\$19,168	374
2000	52.02	917	\$42,875	\$22,592	579
1990	52.03	3,066	\$31,229	\$15,930	487
2000	52.03	1,480	\$41,065	\$22,876	802
1990	54.03	1,365	\$51,385	\$33,663	353
2000	54.03	1,372	\$64,489	\$44,702	264
1990	54.04	2,791	\$47,056	\$36,557	160
2000	54.04	2,920	\$65,708	\$49,729	334
1990	88.00	1,272	\$26,981	\$9,267	131
2000	88.00	369	\$8,292	\$6,303	446
1990	89.03	3,060	\$32,359	\$14,604	991

Table 2.3-9. Environmental Justice Low-Income Analysis (Cont.)

Year	Census Tracts	Households	Median Household Income 1989/1999	Per Capita Income	Persons Below Poverty Level
2000	89.09 (89.03)	1,706	\$39,093	\$16,687	797
2000	89.10 (89.03)	1,915	\$40,219	\$16,346	694
2000	89.11 (89.03)	2,073	\$40,394	\$17,751	799
1990	89.05	1,710	\$33,926	\$12,931	591
2000	89.05	773	\$56,515	\$32,940	389
1990	89.07	1,844	\$29,592	\$12,632	730
2000	89.07	1,350	\$44,488	\$18,879	280
1990	89.08	2,086	\$31,302	\$14,676	356
2000	89.08	836	\$25,706	\$13,719	677
1990	90.01	2,595	\$37,087	\$15,075	673
2000	90.04 (90.01)	1,303	\$56,714	\$19,214	396
2000	90.05 (90.01)	1,268	\$38,047	\$17,870	328
1990	90.02	2,687	\$27,240	\$12,172	735
2000	90.06 (90.02)	1,790	\$34,565	\$16,083	584
2000	90.07 (90.02)	913	\$30,173	\$13,034	718
1990	90.03	2,613	\$29,880	\$13,642	966
2000	90.08 (90.03)	1,670	\$34,037	\$13,126	1,168
2000	90.09 (90.03)	1,894	\$40,717	\$22,224	394
1990	91.03	1,097	\$34,413	\$13,429	207
2000	91.03	1,033	\$40,519	\$16,991	478
1990	91.05	1,112	\$29,464	\$12,775	470
2000	91.05	1,117	\$46,339	\$20,677	479
1990	91.06	1,922	\$36,138	\$16,468	445
2000	91.06	1,909	\$44,393	\$25,183	433
1990	91.07	1,245	\$45,953	\$16,837	236
2000	91.07	1,319	\$54,216	\$25,448	156
1990	91.08	1,373	\$41,686	\$15,631	226
2000	91.08	1,355	\$53,012	\$21,970	170
1990	91.09	1,758	\$50,708	\$16,371	274
2000	91.09	1,759	\$60,151	\$23,058	394
1990	91.10	738	\$19,298	\$10,162	299
2000	91.10	743	\$26,192	\$12,889	448
1990	Combined Census Tracts	63,577	\$29,778	\$15,838	20,467
2000	Combined Census Tracts	64,221	\$38,495	\$21,891	23,548
1990	Sacramento County	394,530	\$32,297	\$15,265	126,783
2000	Sacramento County	453,602	\$43,816	\$21,142	169,784

1989 Health and Human Services Poverty Guidelines for a family of 4 = \$12,100

1999 Health and Human Services Poverty Guidelines for a family of 4 = \$16,700

2.4 COMMUNITY FACILITIES

2.4.1 Schools and Libraries

2.4.1.1 Affected Environment

Schools

The Sacramento City Unified School District, the San Juan Unified School District, and the Folsom-Cordova Unified School District serve residents within the Study Area and its immediate vicinity. The Sacramento City Unified School District is the primary provider of school services within the Study Area.

Fourteen schools have been identified within the Study Area, with 8 schools falling within the City of Sacramento, and the remaining 6 falling within Rancho Cordova's city limits. Of the 8 schools within the Sacramento city limits, 6 are elementary schools (Hubert H. Bancroft, Phoebe Apperson Hearst, Thomas Jefferson, Isador Cohen, Tahoe, and Saint Mary's Elementary Schools), 1 is a middle school (Kit Carson Middle School), and 1 is a high school (Sacramento High School). Of the 6 schools identified in the City of Rancho Cordova, 3 are elementary schools (Cordova Lane, Cordova Villa, and White Rock Elementary Schools), 1 is a middle school (Mitchell Middle School), and 2 are high schools (Kinney and Walnut Wood High Schools).

Of the 14 schools in the Study Area, 5 are within approximately 1,000 feet of US 50. These are White Rock, Thomas Jefferson, and Isador Cohen Elementary Schools, and Kinney and Sacramento High Schools.

Libraries

The Sacramento Public Library provides library services in Sacramento County through 27 libraries located in various parts of the County. Two libraries are located within the Study Area:

- E.K. McClatchy Neighborhood Library, 2112 - 22nd Street, Sacramento
- Rancho Cordova Community Library, 9845 Folsom Boulevard, Rancho Cordova

2.4.1.2 Environmental Consequences

Build Alternatives

The project does not affect any libraries.

Students living south of US 50 and use the White Rock POC to get to White Rock School will not be affected by the replacement of the White Rock Park POC. Likewise, students using the Manlove POC to get to Isador Cohen Elementary School will not be affected. The existing POCs will remain operational while the replacement structures are constructed.

2.4.1.3 Avoidance, Minimization, and/or Mitigation Measures

None proposed.

2.4.2 Parks and Recreation

2.4.2.1 Affected Environment

There are five publicly owned parks adjacent to the proposed project. Three parks are administered by the City of Sacramento (Coloma Park, Oki Park, and Glenbrook Park) and two by Cordova Recreation and Park District (White Rock Park and Salmon Falls Park).

Coloma Park is located on T Street south of US 50. The 3-acre park includes a community center, basketball courts, and a play area.

Oki Park, 14 acres, is located south of US 50 on Wissemann Drive. This park contains a swimming pool, picnic areas, basketball courts, and soccer fields.

Glenbrook Park is located on La Rivera Drive north of US 50. The park is approximately 19 acres with picnic areas, a ball field, soccer fields, tennis courts, and play areas.

White Rock Park, a 12 acre facility administered by the Cordova Recreation and Park District, is located on White Rock Road. The park contains a swimming pool, tennis courts, picnic areas, basketball courts, and play areas. The White Rock Pedestrian Overcrossing (POC), which crosses US 50, allows access to the park from neighborhoods located to the south.

Salmon Falls Park, located east of Watt Avenue, is approximately ¼ acre in size and consists of a picnic area and play structure. The Manlove POC provides access to the park from the south side of US 50.

2.4.2.2 Environmental Consequences

Build Alternatives

The proposed project would not require the acquisition of land from any of the public parks. The project would not impact Coloma, Oki, or Glenbrook parks.

The proposed project replaces the existing POC at White Rock Park east of Mather Field Road. A new POC will be built to comply with current construction standards and comply with the American Disability Act. The existing White Rock POC would remain in place while the new structure is built. A temporary construction easement is required within the park only during the construction of the new POC.

The project also includes replacing the existing Manlove POC east of Watt Avenue. A new POC will be constructed within State right of way and will be built to comply with current construction standards and comply with the American Disability Act. The existing Manlove POC would remain in place while the new structure is built. A temporary construction easement is required within the park only during the construction of the new POC.

2.4.2.3 Avoidance, Minimization, and/or Mitigation Measures

Caltrans and the Cordova Recreation and Park District worked together to design the new White Rock POC to best serve the park and surrounding community. The Park District's updated White Rock Master Plan incorporates the new POC into the master plan.

The existing POCs will remain operational while the replacement structures are built.

2.4.3 Public Health and Safety

2.4.3.1 Affected Environment

Police

Primary public safety services are provided by the Sacramento Police Department (SPD) within the City of Sacramento and the Sacramento County's Sheriff Department (SCSD) in the unincorporated areas of the Study Area. The City of Rancho Cordova Police Department (RCPD) is contracted through the Sacramento County Sheriff's Department and provides public safety services in Rancho Cordova. The California Highway Patrol also provides public safety services along US 50, but does not have facilities

within the Study Area. The SCSD and SPD also do not have facilities within the Study Area. RCPD's Rockingham Station at 10361 Rockingham Drive is located in the Study Area.

Fire Stations

The Sacramento Metropolitan Fire District (SMFD) and the Sacramento Fire Department (SFD) provide first responder services (fire and ambulance) in the Study Area. SFD serves the city, while the SMFD serves the County of Sacramento and City of Rancho Cordova.

No SFD stations are located within the Study Area, but SFD's Battalion 1 stations 1, 2, 4, 5, 6, 8, and 60 service the City of Sacramento jurisdictions of the Study Area. SMFD's stations 54, 61, 62, 64, and 66 service the City of Rancho Cordova jurisdictions of the Study Area. Also, two SMFD Stations, Number 61 at 10595 Folsom Boulevard in Rancho Cordova, and Number 64 at 9116 Vancouver Drive in Sacramento are located within the Study Area.

Hospitals

Medical facilities located within the Study Area include the University of California Davis Medical Center, Shriners Hospital For Crippled Children, Sutter Center For Psychiatry, Mercy San Juan Medical Center Lifeline in Rancho Cordova, and US Healthworks Group. Twelve medical clinics are also located within the Study Area.

Other

Caltrans and the California Highway Patrol operate the Regional Transportation Management Center (RTMC) at Sunrise Boulevard and White Rock Road. The RTMC monitors traffic flow and incidents along area freeways, including US 50, and notifies Caltrans and/or CHP for assistance.

2.4.3.2 Environmental Consequences

Build Alternatives

Negative impacts to the local police, fire, or emergency services are not anticipated. Overall, access routes for emergency vehicles would remain the same under all alternatives.

2.4.3.3 Construction Impacts

Build Alternatives

During construction, the passage of emergency vehicles will be expedited through the work area. Emergency service providers would be notified in advance of the temporary closure of mainline US 50 as a result of the demolition and construction of the Manlove and White Rock pedestrian over-crossings. Detours are available both north and south of US 50 within the project area. The SMFD fire station in Rancho Cordova is located at 10595 Folsom Boulevard just west of Zinfandel Drive. To access US 50 to reach emergency calls to the west of this station, emergency vehicles would have to travel 1.6 miles to the Mather Field Road interchange, rather than using the Zinfandel Drive interchange located .85 miles away. Given advanced notice of this detour, this would not likely have a substantial affect on emergency response times.

The project would also include temporary ramp closures at the US 50 interchanges of Zinfandel Drive and Mather Field Road. The SMFD fire station located at 10595 Folsom Boulevard may be minimally affected by these closures. These two interchanges are both less than two miles from this fire station. Given advanced notice of a ramp closure at one interchange, emergency vehicles would be able to use the other interchange.

2.4.3.4 Avoidance, Minimization, and/or Mitigation Measures

All emergency service providers will be notified prior to temporary closure of US 50 and the temporary closure of the ramps at Zinfandel Drive and Mather Field Road.

2.4.4 Utilities

2.4.4.1 Affected Environment

Within the proposed project limits, there are various local public and private utilities, including water, sewer, solid waste, storm water, electrical, natural gas, and telephone/telecommunications.

Water Supply and Distribution. According to Sacramento County's General Plan, 28 public and private water purveyors are responsible for the treatment and distribution of surface and groundwater as well as securing surface water rights within the County. The County's water purveyors are dependent water districts, autonomous water districts, cities, and private and mutual water companies. Drinking water is supplied by various agencies, including the City of Sacramento's Department of Utilities (85 percent from the American River and 15 percent from groundwater), Sacramento County Department of Water Resources, Arden Cordova Water Service, California American Water Service, and Southern California Water Company.

Flood Control. The Sacramento Area Flood Control Agency (SAFCA) has been charged with the responsibility of providing the Sacramento area with flood protection from the American and Sacramento rivers. Storm water drainage and flood control services in the Study Area are provided by the Sacramento County Stormwater Utility of the County's Water Resources Department.

Wastewater Collection and Treatment. Sewer and wastewater collection, conveyance, and treatment services in the urbanized areas of the County are provided by the Sacramento Regional County Sanitation District (SRCSD) through its contributing agencies such as the County Sanitation District 1 (CSD-1), the City of Folsom, and the City of Sacramento (routed to the Sacramento Regional County Treatment Plant where it receives primary and secondary treatment). The Study Area is serviced by the CSD-1 and the City of Sacramento's Department of Utilities and the City of Rancho Cordova.

Solid Waste Disposal. Solid waste disposal and recycling services in the Study Area are provided by the City of Sacramento within the city's jurisdictional limits, BFI Waste Services (BFI) in the City of Rancho Cordova, and the Sacramento County Department of Waste Management and Recycling Division (WMRD) in the unincorporated areas of the Study Area. The City of Sacramento services all residential and a third of the commercial customers within the city, transporting the waste initially to a transfer station and then to the Lockwood Landfill in Sparks, Nevada. Private franchised haulers service the remaining commercial customers in the City of Sacramento and dispose of the waste at various facilities including the Sacramento County Keifer Landfill, the Yolo County Landfill, L and D Landfill, Florin Perkins Landfill and private transfer stations. BFI, the service provider in the City of Rancho Cordova, transports collected waste to its transfer facility initially, and then transfers un-recyclable waste to landfills outside the County. WMRD disposes their collected waste at Keifer Landfill, which is the primary municipal solid waste disposal facility in Sacramento County. Keifer Landfill is also the only landfill facility in the County permitted to accept household waste from the public.

Electricity. Electricity is provided by the Sacramento Municipal Utility District (SMUD).

Natural Gas. Natural gas service is provided by the Pacific Gas and Electric Company (PG&E).

Telephone/Telecommunication. Multiple companies provide telecommunications services in the Sacramento area, with a variety of services providing land line and cellular telephony, cable television, and internet connectivity. The primary telecommunications service providers in the Sacramento area are AT&T, Sprint, Comcast, Surewest, Electric Lightwave, Inc. (ELI), and Strategic Technologies, Inc. (STI).

2.4.4.2 Environmental Consequences

Utilities would be relocated without interruption of service.

2.4.4.3 Avoidance, Minimization, and/or Mitigation Measures

None proposed.

2.5 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

This section provides a description of the transportation setting and assesses the potential circulation impacts associated with the implementation of the proposed project. This section also discusses the impact to pedestrian and bicycle facilities. Caltrans completed a Traffic Study in September 2006. A copy is available from the Caltrans District 3 office in Sacramento.

2.5.1 Traffic and Transportation

2.5.1.1 Affected Environment

A network of interstate and state freeways, thoroughfares, arterials, collectors, and local streets provides motorway circulation and access in the Greater Sacramento Area. The major freeways in the region are Interstate 5 (I-5), Interstate 80 (I-80), U. S. Highway 50 (US 50), and State Routes (SR) 99 and SR 16, which form an integral part of the County's transportation system. The project will be limited to US 50, which is a major eight-lane, east-west route in the City and County of Sacramento that extends from downtown Sacramento to the Tahoe Basin and beyond.

Transit Operations

The Sacramento Regional Transit District (RT) currently operates 97 bus routes and 37 miles of light-rail over a 418 square-mile service area throughout the Sacramento region (SRTD 2006). Of these, approximately 26 operate within the project limits. One route, 109, is an express bus that uses US 50 from Hazel Avenue to Stockton Blvd. Currently, RT operates two light rail lines: Watt Avenue to downtown to Meadowview Road (Blue Line) and downtown to the City of Folsom (Gold Line). The Gold Line parallels US 50. Nineteen light rail stations are located within one-half mile of the project. Five of the stations have park and ride facilities (Power Inn, Watt/Manlove, Butterfield, Mather Field/Mills, and Sunrise).

Bus stops are located on surface streets adjacent to and underneath US 50 throughout the Study Area. For example, a bus stop on 34th Street is located under the US 50 viaduct. Bus stops are also located under the freeway on Folsom Boulevard at the State University undercrossing and on Hornet Drive, just east of this undercrossing.

RT's 20-Year Vision Plan includes making the light rail stations at Sunrise Boulevard, Mather Field Road, and Bradshaw Road transfer points for light rail, bus trunk line corridors, and enhanced bus corridors.

Paratransit is a private nonprofit corporation that provides on-demand transportation services to individuals with disabilities, the elderly, and related agencies throughout the Sacramento County area.

The El Dorado Transit Authority's commuter routes serve residents traveling from one of four Park and Ride lots in El Dorado County to workplaces, or other destinations, in downtown Sacramento. The service includes ten morning and eleven afternoon trips, most during the AM and PM peak commutes. Currently, ridership is limited more by the capacity of the Park and Ride lots, which have a total capacity of 438 spaces, than by the number of buses or bus routes.

Currently, El Dorado Transit's commuter services are oriented around getting workers from western El Dorado County cities to downtown Sacramento. However, the "US 50 Corridor Short Term Plan" emphasizes the growing importance of employment centers in Folsom and Rancho Cordova. The greatest growth in commuting to workplaces along the US 50 corridor among El Dorado County's workers is expected in these two communities. Very little growth is expected in the number of people commuting to downtown Sacramento.

El Dorado Transit is in the process of expanding the bus fleet serving the US 50 corridor by five buses. The District's Short-Term Transit Plan includes expanding the supply of Park and Ride lot spaces by 60 in El Dorado Hills and by 34 in Cameron Park, to the east. In the long-term, between 2010 and 2027, the lots in western El Dorado County's cities are projected to need an additional 175 spaces.

Greyhound and Amtrak provide interregional bus and train service, respectively. Greyhound operates a bus station in downtown Sacramento at 8th and L Streets. The Amtrak Train Station is also located in downtown Sacramento, on 4th and I Streets.

Parking

As noted above, five of the nineteen light rail stations within one-half mile from the project have park and ride facilities (approximately 2,000 spaces available). All of these stations are located along the Gold Line from Power Inn Road to Sunrise Blvd.

Existing Traffic Conditions

US 50 is a major east-west route that extends from Sacramento to the Nevada State line and on to the East Coast. US 50 serves cross-country travel, recreational traffic to and from the Lake Tahoe area, as well as daily commuter traffic within the greater Sacramento area. US 50 within the project area is an eight lane divided freeway with 12-foot lanes and sections of auxiliary lanes between interchanges. The freeway is divided by a continuous metal beam or concrete median barrier. Inside and outside shoulders are 8 - 10 feet wide.

Traffic volumes have increased dramatically with the rapid development along the US 50 corridor in Sacramento and El Dorado Counties. Planned developments in Sacramento, Rancho Cordova, Folsom, El Dorado Hills, and Cameron Park will further degrade the level of service along this segment of US 50. The combined eastbound and westbound annual average daily traffic (AADT) between West Sacramento and Hazel Avenue is included in Table 2.5-1 at the end of this section.

Capacity and Congestion

Capacity is defined as the maximum amount of traffic that can be accommodated by a uniform segment of freeway under prevailing conditions. If the vehicular demand exceeds this capacity, the vehicle density will increase and speeds will drop until breakdown occurs, resulting in queuing (back-ups) and congestion. For a typical freeway, 2,200 vehicles per hour (vph) per lane is used for capacity. The number of vehicles able to use a bus/carpool lane is assumed to be 1,800 vph. For this project, actual field traffic counts conducted in 2004 measured the actual capacity of the roadway at approximately 2,000 vehicles per hour per lane prior to breakdown.

Existing congestion and speed data was collected using a tachometer, or "tach-run," during the morning and evening peak periods, Tuesday through Thursday. Each tach-run involved a two-car team, using the "floating car" method, where the cars are separated by 15-minute intervals.

The Fall 2004 Congestion Report, prepared by Caltrans District 3 Traffic Operations, Sacramento, identified the limits and duration of congestion for the US 50 corridor. The definition of recurrent congestion, which occurs regularly each weekday, is when speeds drop below 35 mph for over 15 minutes. This does not include congestion that was caused by incidents or events.

Westbound

The traffic study prepared for this project showed that the typical westbound AM commute experienced recurrent congestion from Zinfandel Drive to the Oak Park Interchange between the hours of 7:00–8:30 AM. The average amount of congestion increased from 36,000 vehicle-hours per year in Fall 2000 to 65,000 vehicle-hours per year in Fall 2004. Congestion monitoring during 2004 showed the average speed during the peak period was 33 mph along this congested segment of US 50.

The westbound PM commute experienced recurrent congestion from Zinfandel Drive to Bradshaw Road (4:30-5:30 PM), and Watt Avenue to the Oak Park Interchange (3:30-5:45 PM). The average amount of congestion increased from 12,000 vehicle-hours per year in Fall 2000 to 72,000 vehicle-hours per year in Fall 2004, a six-fold increase. Congestion monitoring during 2004 showed the average speed during the peak period was 32 mph.

Eastbound

The typical eastbound AM commute experienced recurrent congestion from the Oak Park Interchange to Bradshaw Road (7:00–8:15 AM). The average amount of congestion increased over four times from 14,000 vehicle-hours per year in Fall 2000 to 61,500 vehicle-hours per year in Fall 2004. Congestion monitoring during 2004 showed the average speed during the peak period was 31 mph.

The eastbound PM commute experienced recurrent congestion from the Oak Park Interchange to east of Watt Avenue (3:30 – 6:00 PM), and from the Zinfandel Drive to Hazel Avenue (4:00-6:15 PM). The average amount of congestion doubled from 158,000 vehicle-hours per year in Fall 2000 to 358,500 vehicle-hours per year in Fall 2004. Congestion monitoring during 2004 showed the average speed during the peak period was 25 mph between Zinfandel Drive and Folsom Boulevard and 31 mph between Downtown and Bradshaw Road.

Accidents

The Caltrans Traffic Accident Surveillance and Analysis System (TASAS) data for the three-year period July 1, 2002 through June 30, 2005 is summarized in Table 1-4.

Within the three-year period, there were 2,707 accidents with 4 fatalities along US 50 from the Oak Pak Interchange to Sunrise Boulevard. Fifty-eight percent of the total accidents reported for the three year period were rear end type collisions, 17% were hit object, and 15% sideswipe.

The total accident rate was higher than the average rate for a similar highway segment statewide. However, the fatality rate was lower than the statewide average.

These statistics indicate that slowdowns, lane changing, and congestion were the main cause of accidents within the project area. These types of collisions are indicative of a congested area. The proposed project would increase capacity, reduce congestion, and contribute to a decrease in delays and lower overall accident rates.

Level of Service (LOS)

The current level of service (LOS) for westbound AM peak hour and eastbound PM peak hour is LOS F. LOS F is defined as very congested, with traffic jams. Operating speeds are less than 53 mph. See Figure 1-2 for a definition of all levels of service (A – F).

2.5.1.2 Environmental Consequences

Transit Operations

Build Alternatives

It's anticipated that transit ridership would increase as a result of the project. Implementation of bus/carpool lanes on US 50 would allow buses to bypass congested mixed flow traffic lanes, resulting in improved travel times during peak commuting periods. The project would particularly benefit Sacramento Regional Transit Bus Route 109, an express bus that uses US 50 from Hazel Avenue to Stockton Blvd, and El Dorado Transit, a commuter transit service from El Dorado County to Rancho

Cordova and the Butterfield Light Rail Station. The project also creates future transit opportunities, such as additional express bus routes and carriers on US 50.

El Dorado Transit currently runs 10 morning commuter routes to and 11 afternoon commuter routes from downtown Sacramento. The existing bus/carpool lane from Shingle Springs to Sunrise Boulevard reduced their commuter runs by 15 minutes. All 11 runs are either at or near capacity. El Dorado Transit anticipates an increase in the number of runs once the bus/carpool project is operational.

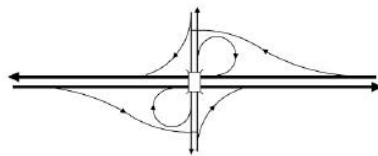
Traffic

In 2006, Caltrans District 3 Office of Freeway Operations prepared a traffic report that compared the future traffic flow performances of 7 project alternatives (6 build and 1 no build). The report also included a mixed-flow, full HOV conversion ("take-a-lane"), and partial HOV conversion alternative.

The analysis was done using the Paramics micro-simulation modeling software program. Paramics software models the movement and behavior of individual vehicles on a highway network. Forty-four separate models were built for eastbound and westbound directions for the AM and PM commute periods. The W-X local street network at the connections with US 50 was included in the network. Folsom Boulevard was not included in the network, due to the extensive amount of additional data collection and calibration that would have been required. It was assumed that vehicles not served by the network in the model simulation would divert to Folsom Boulevard, and other arterials to reach their destinations.

Several separate State and local projects within the study area are planned for the US 50 corridor. These projects were modeled into the Paramics program at their respective completion dates:

- Caltrans is proposing eastbound and westbound auxiliary lanes between Mather Field Road and Zinfandel Drive Interchanges. In addition, new ramp meters would be activated for the eastbound on-ramps at Howe Avenue and Bradshaw Road. This work could be completed by 2007.
- Caltrans is proposing ramp metering work, including widening existing metered ramps to add bus/carpool lanes. Once completed, all ramps in the project limits would be metered in the AM and PM time periods. This project is currently not funded; however, it could be completed by 2020.
- The City of Sacramento plans to convert 21st Street from 3 lanes (one-way) to 2 lanes (two-way) between W and X Street. This work should be completed by 2008.
- The City of Sacramento also plans to convert 19th and 21st Streets (north of W Street) from 3 lanes (one-way) to 2 lanes (one-way). This project is currently not funded; however, the work could be completed by 2010.
- Sacramento County is proposing to redesign the Watt Avenue Interchange to an L-9 design configuration:



The freeway ramps would be metered with bus/carpool bypass lanes. This work could be completed by 2011.

- The City of Rancho Cordova is proposing to construct a new interchange between Sunrise Boulevard and Hazel Avenue. Auxiliary lanes will be added between these interchanges in both directions. The freeway ramps will be metered with bus/carpool bypass lanes, and would access only the south side of US 50. This work could be completed by 2015.

Traffic modeling simulations were conducted for each alternative in the morning and afternoon peak periods in both directions for design years 2010, 2020, and 2030. Tables A-1 through A-4 in the traffic study appendix show output results (by freeway section) generated by Paramics simulation runs.

Table 2.5-2 includes westbound AM average speeds, average delay, and average travel times in 2010, 2020, and 2030 for the no-build alternative and the bus/carpool alternatives. The table shows that by 2030, the average speed in the bus/carpool lane would be double that of the average speed in the mixed flow lanes of the no-build alternative. For Alternative 10D-1, average travel time by 2030 would be approximately 42 minutes for the no-build condition, but 16 minutes in the bus/carpool lane and approximately 31 minutes in the mixed flow lanes under the bus/carpool alternative. Alternative 10D-3 shows similar savings.

Table 2.5-3 is a summary of time saving for existing bus/carpool lanes along US 50 (Shingle Springs to Sunrise Boulevard), US 99 (E Street to Mack Road), and I-80 (Longview Drive to the Placer/Sacramento County line) in Sacramento. As shown on the table, commuters using the bus/carpool lanes experienced time saving on each route in the AM and PM direction, with average time saving of 10 minutes.

Tables 2.5-4 and 2.5-5 highlight the actual 2005 time saving of the existing bus/carpool lanes versus mixed-flow lanes on US 50 between El Dorado Hills Boulevard and Sunrise Boulevard. Table 2.5-4 shows the 2010 predicted time saving of bus/carpool lanes from El Dorado Hills Boulevard to the Oak Park Interchange (Alternative 10D-1). As shown on this table, the predicted 2010 time-savings for commuters using the bus/carpool lanes between El Dorado Hills and the Oak Park Interchange is substantial: approximately 26 minutes in both the westbound AM and eastbound PM direction.

Table 2.5-5 shows the 2010 predicted time saving of bus/carpool lanes from El Dorado Hills Boulevard to Watt Avenue (Alternative 10D-3). The predicted 2010 time-savings for commuters using the bus/carpool lanes between El Dorado Hills and Watt Avenue is substantial: approximately 18 minutes in westbound AM direction and over 13 minutes in the eastbound PM direction.

Existing Conditions - 2004

Model results show that the typical westbound AM commuter experiences recurrent congestion from Sunrise Boulevard to the Oak Park Interchange. In 2004, the average speed was 42 mph. Bottlenecks in the AM commute period existed between Bradshaw Road and Zinfandel Drive, Watt Avenue and Howe Avenue, and the Oak Park Interchange. In the PM commute period, bottlenecks existed between the Oak Park Interchange and Stockton Boulevard, 59th Street and 65th Street, Watt Avenue, and Mather Field Road.

LOS for the 2004 year was modeled as LOS F, based on freeway density, throughout the study area during the peak hour.

Project Alternatives

Alternative 10D-1 (26th Street)

Alternative 10D-1 showed speeds ranging between 20 and 57 mph in the westbound AM commute period for 2010. By 2020, speeds were between 19 and 55 mph. By 2030, speeds dropped to

between 19 mph and 44 mph. Model results in 2010 showed an average speed ranging between 47 and 64 mph in the eastbound AM direction. By 2020, speeds were between 46 and 64 mph. By 2030, speeds were between 35 mph and 63 mph.

The westbound PM commute period of Alternative 10D-1 showed speeds ranging between 12 and 65 mph in 2010. By 2020, speeds were between 12 and 59 mph. By 2030, speeds dropped to between 12 mph and 55 mph. Model results in 2010 showed an average speed ranging between 18 and 45 mph in the eastbound PM direction. By 2020, speeds were between 16 and 45 mph. And by 2030 speeds were between 14 mph and 45 mph.

Ending the lane at this location would create a single trap lane where a trap-option lane currently exists.

Alternative 10D-3 (Watt Avenue)

Alternative 10D-3 showed speeds in the westbound AM commute period ranging between 21 and 59 mph in 2010. By 2020, speeds were between 20 and 52 mph. By 2030, speeds dropped to between 17 mph and 45 mph. Model results in 2010 showed an average speed ranging between 43 and 65 mph in the eastbound AM direction. By 2020, speeds were between 41 and 65 mph. By 2030, speeds were between 34 mph and 65 mph.

The westbound PM commute period of Alternative 10D-3 showed speeds ranging between 15 and 65 mph in 2010. By 2020, speeds were between 12 and 59 mph. By 2030, speeds dropped to between 14 mph and 55 mph. Model results in 2010 showed an average speed ranging between 13 and 45 mph in the eastbound PM direction. By 2020, speeds were between 15 and 45 mph. By 2030 speeds were between 14 mph and 45 mph.

Ending the lane at this location preserves the single trap option for the 2-lane off-ramp.

No-Build Alternative

The no-build alternative retains the 2004 freeway configuration, and includes all planned transportation improvements within the project limits (see above).

The westbound AM commute period showed speeds ranging between 23 and 43 mph in 2010. By 2020, speeds dropped to 19 and 35 mph. By 2030 speeds further decreased to between 16 mph and 30 mph. The eastbound AM commute showed speeds ranging between 26 and 63 mph in 2010. By 2020, speeds were between 25 and 62 mph; by 2030, between 20 mph and 61 mph.

The westbound PM commute period showed speeds ranging between 12 and 53 mph in 2010, 12 and 53 mph in 2020, and 12 mph and 50 mph in 2030. The eastbound PM commute, showed speeds ranging between 15 and 45 mph in 2010. By 2020, speeds were between 14 and 40 mph. By 2030, speeds were between 14 mph and 40 mph. Overall, traffic would operate at LOS F for all future years modeled during the commute hours.

Model results for the no-build alternative, even with the improvements from future assumed projects, show a continual increase in congestion and progressive decline in the volume of vehicular throughput when compared with the build alternatives. Throughput is the number of vehicles passing a given point during a given period of time. The no-build alternative consistently showed a higher number of blocked vehicles, referred to as blocked or “unmet demand”. Unmet demand was a valuable indicator in determining the most effective alternative.

Other Alternatives

Three other alternatives were analyzed in the traffic study: mixed flow lane, full bus/carpool conversion (take-a-lane) and partial bus/carpool conversion (take-a-lane from the Oak Park Interchange to 9th Street).

Mixed Flow Lane Comparison

A mixed-flow lane study is required, per the “FHWA Procedure Memorandum D 6103,” to make comparisons with the bus/carpool lane alternative in terms of person-trips. The memorandum establishes that within 5 years after opening, the bus/carpool lane should move more people than a comparable mixed flow lane. The mixed flow lane comparison includes all of the features of Alternative 10D-1 and entails construction of an additional mainline lane on the median side between the project limits. This additional lane would be unrestricted, but would require special treatment in the eastbound direction at the connection to the existing bus/carpool lane at the Sunrise Boulevard Interchange. An added mixed flow lane cannot connect directly to the existing bus/carpool lane at this location. Excessive violations, confusion and unsafe lane changes would result. The existing eastbound bus/carpool lane at Sunrise Boulevard Interchange must be entered by a lane change at the start of the bus/carpool lane. This requires a lane shift of the mixed flow lanes to the right, thus creating an undesirable lane configuration and would create congestion at this location. The model results of the comparison are included in Attachment C of the traffic study, and show that all bus/carpool alternatives carried more people than the mixed flow and no-build alternatives in design years 2020 and 2030, AM and PM peak commute periods.

Full Bus/Carpool Conversion Alternative (Take-a-lane)

The full bus/carpool conversion option (changing the existing median lane to a bus/carpool lane) was the poorest performer of all the alternatives studied. This resulted in the highest levels of congestion and the lowest average speeds and vehicular throughput volumes in both directions. Therefore, the full bus/carpool conversion alternative was not recommended.

Partial Bus/Carpool Conversion Alternative

The partial bus/carpool conversion scenario (constructing bus/carpool lanes up to the W-X portion, then changing the existing No. 1 lane to a bus/carpool lane) provided similar benefits as the other alternatives in the westbound direction, because it added a bus/carpool lane up to the W-X section. However, queuing and congestion occurred in the traffic model starting at the W-X section and backing up to Howe Avenue, due to the bottleneck effects on the W-X section as a result of reduced capacity by the bus/carpool conversion on the W-X section.

The partial bus/carpool conversion option performed better than the full conversion, but performed worse than all of the bus/carpool build alternatives. In addition, a bus/carpool lane should be accessed from a mixed-flow lane only through a lane change to reduce occupancy violations. For the partial bus/carpool conversion option, an artificial lane shift with closure would be required in the eastbound direction at the beginning of the conversion, because a mixed flow lane should not be connected directly to an HOV lane. This forced lane change caused congestion in the traffic model simulation. This alternative was not recommended.

Conclusion

Other performance measures, such as weaving movements, ramp queuing, time savings, and compatibility with other projects, were also evaluated. Large demand and volume differences did occur when the build alternatives were compared to the no-build alternative, which performed poorly. In the

Traffic Study, Alternative 10D-1 out performed other choices in most of the study parameters. Alternative 10D-3 is a viable option as well.

Circulation and Accessibility

Build Alternatives

Alternatives 10D-1 and 10D-3 would provide an improvement in access by reducing congestion on the freeway. These alternatives would not provide any new on- and off-ramps. As a result, they would not require the re-routing of any surface street traffic: no new origins or destinations for commuter vehicles would be created along US 50.

These alternatives have implications for traffic flows on the mainline of US 50 itself, since they would not provide an easy means for bus/carpool traffic to exit or enter the highway. The Traffic Report prepared for this project provides detailed information on this impact.

The addition of bus/carpool lanes would reduce traffic volumes on some parallel arterials during peak traffic volume periods. The traffic projections prepared in 1997 indicate that portions of Folsom Boulevard could see reductions in peak hour traffic volumes up to 16 percent, compared to No Build conditions in 2020.

2.5.1.3 Construction Impacts

Transit. During construction, some RT bus stops would be temporarily relocated. Caltrans would coordinate the details of relocated bus stops with RT. Bus stop relocation would be temporary; in most cases, relocation would last six months or less.

2.5.2 Pedestrian and Bicycle Facilities

2.5.2.1 Affected Environment

Two pedestrian over-crossings (POC) fall within the project limits. The Manlove POC, located east of Watt Avenue, provides access to Salmon Falls Park and Isador Cohen Elementary School north of US 50. White Rock POC is located between Mather Field Road and Zinfandel Drive and provides access to White Rock Park north of US 50.

The City of Sacramento is currently updating their bikeway master plan. Existing Class II bicycle routes that cross under or over US 50 are located on Alhambra Blvd., 34th Street, Folsom Blvd., 39th Street, 48th Street, 51st Street, Hornet Drive, Occidental Drive, and Watt Ave. Other Class II bicycle routes within the study area include U Street, Mayhew Drive, Bradshaw Road, Routier Road, Mather Field Road, Zinfandel Drive, and Folsom Boulevard. The city plans to add bicycle routes at 65th Street and Redding Ave. In 2005, the City of Rancho Cordova completed a bicycle circulation study that identified existing and proposed bicycle routes. Existing routes include Folsom Blvd., Mayhew Road, Bradshaw Road, Routier Road, Mather Field Road, and Zinfandel Drive. Sacramento County adopted the 2010 Sacramento City/County Bikeway Master Plan in 1993. Existing bicycle routes within the unincorporated portions of the project include Folsom Boulevard. The American River Bike Trail, a 32 mile bike route along the American River, is located to the north of the project. A bicycle route east of Sunrise Boulevard links Folsom Boulevard to the American River Bike Trail. SACOG mapping also shows bicycle routes on Land Park Drive and 65th Street.

2.5.2.2 Environmental Consequences

Build Alternatives

The proposed project would replace the existing White Rock POC at White Rock Park and the Manlove POC east of Watt Avenue. The new POCs will comply with current construction standards and with the

American Disability Act requirements. The existing POCs will remain in place while the new structures are built.

Caltrans and the Cordova Recreation and Park District worked together to design the new White Rock POC to best serve the park and surrounding community. The Park District updated the White Rock Master Plan, incorporating the new POC into the master plan.

The new Manlove POC will remain within the existing State right of way.

2.5.2.3 Construction Impacts

Build Alternatives

During demolition of the existing White Rock Park and Manlove POCs, traffic on US 50 in both directions would be detoured. For White Rock POC, several detour options are recommended. One detour of approximately 2.5 miles would be along Folsom Boulevard between Zinfandel Drive and Mather Field Road. This detour would take place during periods of low traffic volumes (night and early morning hours; for example 11 pm to 4 am) and would last for up to 4 nights. Folsom Boulevard is largely commercial in this area, with residential areas to the south of the road separated by RT's light rail tracks. Given that the detour would use heavily traveled streets in a primarily commercial corridor and would be temporary and of short duration, impacts of increased traffic and traffic noise during the early morning hours would not be likely to have an adverse impact on residents.

Because both Zinfandel Drive and Mather Field Road have crossings at the light rail tracks in this area, detour traffic would be stopped periodically for train crossings. An alternate detour of similar length (2.5 miles) is available along International Drive, a four-lane arterial that connects Mather Field Road and Zinfandel Drive south of US 50. This road runs adjacent to residential areas, including single-family homes and apartments. A decision on the final detour route will be made in consultation with the City of Rancho Cordova.

The demolition of the Manlove POC also would require a detour for US 50 traffic. Traffic would be detoured to Folsom Boulevard using Watt Avenue (east-bound traffic) and Bradshaw Road (west-bound traffic). As with White Rock POC, this detour would take place during periods of low traffic volumes (night and early morning hours; for example 11 pm to 4 am) and would last for up to 4 nights.

2.5.2.4 Avoidance, Minimization, and/or Mitigation Measures

To minimize the impact of closing US 50 during the demolition of the two pedestrian over-crossings, the following measures are proposed:

- The demolition of both structures will not occur at the same time.
- The closures will be noticed in the local media, including newspapers, television, and radio.
- The closures will also be noticed on the changeable message signs that operate on east-bound and west-bound US 50.

Table 2.5-1: Mainline Volumes

Location	AADT	
	2000	2004
West Sacramento to I-5	148,000	158,000
I-5 to Riverside Blvd.	200,000	222,000
Riverside to 15 th /16 th Streets	210,000	231,000
15 th /16 th Streets to 99/51 I/C	233,000	254,000
99/51 I/C to Stockton Blvd.	208,000	224,000
65 th Street to Hornet Drive	196,000	205,000
Hornet Drive to Howe Avenue	177,000	176,000
Howe Ave. to Watt Ave.	178,000	183,000
Zinfandel Dr. to Sunrise Blvd.	133,000	149,000
Sunrise Blvd. to Hazel Ave.	107,000	127,000

Source: Caltrans. Traffic report. September 2006.

Table 2.5-2: Westbound AM Average Speeds, Average Delay and Average**Alternative 10D-1**

Year	Alternative	Lane Type	Ave. Speed (mph)	Ave. Delay (min)	Ave. Travel Time (min)
2010	No Build	Bus/Carpool Lane Mix Flow	N/A 31.0	N/A 3.3	N/A 31.1
	Alt. 10D-1	Bus/Carpool Lane Mix Flow	59.0 27.0	0.0 6.3	12.8 27.8
2020*	No Build	Bus/Carpool Lane Mix Flow	N/A 26.0	N/A 9.8	N/A 37.7
	Alt. 10D-1	Bus/Carpool Lane Mix Flow	50.0 23.0	0.0 10.4	11.0 31.8
2030*	No Build	Bus/Carpool Lane Mix Flow	N/A 23.0	N/A 14.5	N/A 42.4
	Alt. 10D-1	Bus/Carpool Lane Mix Flow	47.8 24.0	0.0 10.0	16.0 31.4

Alternative 10D-3

Year	Alternative	Lane Type	Ave. Speed (mph)	Ave. Delay (min)	Ave. Travel Time (min)
2010	No Build	Bus/Carpool Lane Mix Flow	N/A 30.0	N/A 5.0	N/A 14.0
	Alt. 10D-3	Bus/Carpool Lane Mix Flow	61.0 28.9	0.0 2.2	6.0 12.5
2020*	No Build	Bus/Carpool Lane Mix Flow	N/A 25.0	N/A 6.0	N/A 16.0
	Alt. 10D-3	Bus/Carpool Lane Mix Flow	55.9 26.6	0.0 3.4	6.6 13.7
2030*	No Build	Bus/Carpool Lane Mix Flow	N/A 24.5	N/A 6.5	N/A 17.0
	Alt. 10D-3	Bus/Carpool Lane Mix Flow	56.6 28.3	0.0 2.6	6.5 12.9

Results produced from the micro-simulation Model (Paramics).

* This segment of US 50 reaches its capacity by 2020. Therefore, no significant changes in the results occur between 2020 and 2030.

Table 2.5-3: Summary of Time Savings on Existing Bus/Carpool Routes in Sacramento

SR-99 Northbound – AM

Year	Length of HOV Section (Miles)	Length of Congested Section (Miles)	Actual Travel Time (Min:Sec) (A)	HOV Travel Time (Min:Sec) (B)	Time Saved Using HOVL (Min:Sec) (A-B)
2003	14.3	8.2	20:30	14:40	5:50
2004	14.3	9.7	29:00	18:00	11:00
2005	14.3	9.8	28:00	17:10	10:50

SR-99 Southbound – PM

Year	Length of HOV Section (Miles)	Length of Congested Section (Miles)	Actual Travel Time (Min:Sec) (A)	HOV Travel Time (Min:Sec) (B)	Time Saved Using HOVL (Min:Sec) (A-B)
2003	14.3	6.4	21:40	15:00	6:40
2004	14.3	6.3	31:45	18:31	13:15
2005	14.3	10.0	34:06	17:10	16:35

US-50 Westbound – AM

Year	Length of HOV Section (Miles)	Length of Congested Section (Miles)	Actual Travel Time (Min:Sec) (A)	HOV Travel Time (Min:Sec) (B)	Time Saved Using HOVL (Min:Sec) (A-B)
2003	11.5	6.5	18:50	11:20	7:30
2004	11.5	6.0	22:00	11:24	10:36
2005	11.5	6.0	22:45	11:35	11:10

US-50 Eastbound – PM

Year	Length of HOV Section (Miles)	Length of Congested Section (Miles)	Actual Travel Time (Min:Sec) (A)	HOV Travel Time (Min:Sec) (B)	Time Saved Using HOVL (Min:Sec) (A-B)
2003	11.5	4.7	16:30	9:40	6:50
2004	11.5	4.8	21:30	11:30	10:00
2005	11.5	4.8	17:50	10:36	7:13

I-80 Westbound – AM

Year	Length of HOV Section (Miles)	Length of Congested Section (Miles)	Actual Travel Time (Min:Sec) (A)	HOV Travel Time (Min:Sec) (B)	Time Saved Using HOVL (Min:Sec) (A-B)
*2004	9.6	9.6	19:00	8:55	10:05
2005	9.6	9.6	20:30	8:51	11:39
* Opened 7/04					

I-80 Eastbound - PM

Year	Length of HOV Section (Miles)	Length of Congested Section (Miles)	Actual Travel Time (Min:Sec) (A)	HOV Travel Time (Min:Sec) (B)	Time Saved Using HOVL (Min:Sec) (A-B)
2003	5.6	0.0	5:15	5:10	0:05
2004	9.6	1.7	7:30	6:15	1:15
2005	9.6	1.7	8:20	7:30	0:50

Table 2.5-4: Summary of Bus/Carpool Time Savings on US 50, El Dorado Hills Boulevard to the Oak Park Interchange (Alternative 10D-1)

	Year	Length of Bus/Carpool Section (Miles)	Mixed Flow Travel Time (Min:Sec) (A)	HOV Travel Time (Min:Sec) (B)	Time Saved Using HOVL (Min:Sec) (A-B)
Westbound – AM					
El Dorado Hills Blvd. to Sunrise Blvd. (actual)	2005	11.5	22:45	11:35	11:10
Sunrise Blvd. to Oak Park Interchange (predicted with new project)	2010	12.6	27:48	12:48	15:00
Total Bus/Carpool Corridor: Actual + Predicted El Dorado Hills to Oak Park Interchange	2010	24.1	50:33	24:23	26:00
Eastbound – PM					
Sunrise Blvd. To El Dorado Hills Blvd. (actual)	2005	11.5	17:50	10:36	7:14
Oak Park Interchange to Sunrise Blvd. (predicted with new project)	2010	12.6	26:36	7:54	18:42
Total Bus/Carpool Corridor: Actual + Predicted Oak Park Interchange to El Dorado Hills	2010	24.1	44:26	18:30	25:55

Table 2.5-5: Summary of Bus/Carpool Time Savings on US 50, El Dorado Hills Boulevard to Watt Avenue (Alternative 10D-3)

	Year	Length of Bus/Carpool Section (Miles)	Mixed Flow Travel Time (Min:Sec) (A)	HOV Travel Time (Min:Sec) (B)	Time Saved Using HOVL (Min:Sec) (A-B)
Westbound – AM					
El Dorado Hills Blvd. to Sunrise Blvd. (actual)	2005	11.5	22:45	11:35	11:10
Sunrise Blvd. to Watt Ave. (predicted with new project)	2010	7.2	12:30	6:00	6:30
Total Bus/Carpool Corridor: Actual + Predicted El Dorado Hills to Watt Ave.	2010	18.7	35:15	17:35	17:40
Eastbound – PM					
Sunrise Blvd. To El Dorado Hills Blvd. (actual)	2005	11.5	17:50	10:36	7:14
Watt Ave. to Sunrise Blvd. (predicted with new project)	2010	7.2	13:18	6:54	6:24
Total Bus/Carpool Corridor: Actual + Predicted Watt Ave. to El Dorado Hills	2010	18.7	31:08	17:30	13:38

2.6 VISUAL / AESTHETICS

2.6.1 Regulatory Setting

NEPA requires that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings [42 USC. 4331(b)(2)]. FHWA, in its implementation of NEPA, directs that final decisions regarding projects be made in the best overall public interest, taking into account adverse environmental impacts, including the destruction or disruption of aesthetic values.

Likewise, CEQA requires that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of *aesthetic*, natural, scenic and historic environmental qualities.” [CA Public Resources Code Section 21001(b)]

2.6.2 Affected Environment

This section presents the results of a Visual Impact Assessment (VIA) that analyzed the effects of the project on visual and scenic resources.

2.6.2.1 Methodology

The VIA evaluated the existing conditions of aesthetic resources in the landscape. The evaluation followed FHWA guidelines by identifying the overall regional visual character and the character within the project area. Visual features (resources) of the landscape were assessed, emphasizing the character and quality of the visual resources.

Viewer groups were identified as people living near or traveling through the project area. Their views were ranked as levels of sensitivity toward the visual resources in the landscape.

Existing conditions of the visual landscape were documented and compared with the proposed project visual landscape changes and evaluated for the degree of impact. The degree of impact depends on both the magnitude of change in the visual resource (visual character and quality) and viewers' responses to and concern for those changes.

FHWA established guidelines (Publication Number FHWA-HI-88-054) for the preparation of visual impact assessments. In accordance with these guidelines, the project area was divided into several Landscape Assessment Units (LAU) to aid the visual impact analysis. Each LAU is an area where impacts of highways on landscape units and major viewsheds within landscape units are assessed. A viewshed is all surface areas and critical objects visible from an observer's viewpoint.

2.6.2.2 Visual Assessment Criteria

The visual character and quality of the region and the project site were evaluated using the following 3 established FHWA criteria for visual landscape relationships:

Vividness - The visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.

Intactness - The visual integrity of the natural and artificial landscape and its freedom from encroaching elements. Intactness can be present in well-kept urban and rural landscapes, as well as in natural settings.

Unity - The visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape (FHWA 1983).

Vividness, intactness, and unity are the basic components used to describe the visual character and quality for a VIA. In accordance with FHWA guidelines, the aforementioned terms are used to objectively rate a landscapes' visual quality, using the following equation:

$$\text{Visual Quality} = \text{Vividness} + \text{Intactness} + \text{Unity} / 3 \text{ or} \\ \text{VQ} = \text{V} + \text{I} + \text{U} / 3$$

Each qualifying descriptor is evaluated independently and each quality is assigned a rating from 1 to 7. The score range is as follows:

- 1=Very Low
- 2=Low
- 3=Low/Medium
- 4=Medium
- 5=Medium/High
- 6=High
- 7=Very High

The appearance of the landscape is described below using these criteria and descriptions of the dominance of certain elements (form, line, color, and texture). These elements are the basic components used to describe visual character and quality for most visual assessments.

Viewer sensitivity or concern is based on the following:

- Visibility of resources in the landscape.
- Proximity of viewers to the visual resource.
- Relative elevation of viewers to the visual resource.
- Frequency and duration of views.
- Number of viewers
- Types and expectations of individuals and viewer groups.

The criteria for identifying the importance of views are related in part on the position of the viewer relative to the resource. An area of the landscape that is visible from a particular location (i.e. an overlook) or series of points (i.e., a road or trail) is defined as a viewshed.

To identify the importance of views of a resource, a viewshed may be divided into distance zones of foreground, middleground, and background. A viewshed is an area that a person can see. Generally, the closer a resource is to the viewer, the more dominant it is and the greater is its importance to the viewer. Although distances zones in viewsheds may vary between different geographic regions, or types of terrain, a commonly used set of criteria identifies distances zones as follows:

Foreground Zone = 0.25-0.5 mile from the viewer.

Middleground Zone = extending from the foreground zone to 3 - 5 miles from the viewer.

Background Zone = extending from the middleground zone to infinity.

Visual sensitivity also depends on the number and type of viewers and the frequency and duration of views. Generally, visual sensitivity increases with an increase in total numbers of viewers, the frequency of viewing (i.e., daily or seasonally), and the duration of views (i.e., how long a scene is viewed).

Visual sensitivity is higher for views seen by people who are driving for pleasure, people engaging in recreational activities such as hiking, biking or camping, and homeowners. Visual sensitivity tends to

be lower for views seen by people driving to and from work or as part of their work. Views from recreation trails and areas, scenic highways, and scenic overlooks are generally assessed as having high visual sensitivity.

2.6.2.3 Viewer Groups

The major viewer groups identified for this project are highway users and highway viewers.

- Highway Users – The largest group of affected viewers are those traveling along SR 50. Highway users include commuters, truck drivers, and weekend drivers destined for local and regional recreational areas.
- Highway Viewers - This group is most likely to be affected by the proposed project because of their proximity to the freeway. The project area includes a mix of residential, commercial, industrial, and public uses. Most of the areas adjacent to the project are developed. Sound walls are proposed along the residential property lines and residents accustomed to the traffic and sight of US 50 will have their existing view blocked.

2.6.2.4 Landscape Assessment Units

Landscape Assessment Units (LAU) are defined as the spatial enclosure and visual interrelationships among the individual landscape types that determine the visual character of the landscape unit. The edges dividing one landscape unit from another is often defined by slope types, watershed ridges, and spatial constrictions.

The project LAU includes all areas from Sunrise Boulevard west to the Oak Park Interchange. Most of the land uses on the north side of US 50 between Sunrise Boulevard and Bradshaw Road are single family and multi-family residential. Commercial uses are located between Folsom Boulevard and Zinfandel Drive and from Routier to Bradshaw Roads.

There are also commercial uses on the south side of the highway from Sunrise Boulevard to Mather Field Road. The properties from Mather Field Road to Bradshaw Road are primarily single family and multi-family residential. Properties from Bradshaw Road to the Oak Park Interchange include a mix of residential, commercial, and industrial uses.

The highway within the project LAU is mostly at grade with the exception of slopes created for construction of the interchanges. Private walls and fences, sound walls, and plantings separate the residential areas from the highway and provide a visual buffer.

The majority of the viewers in the commercial and industrial areas see the highway. There are no solid fences or walls to provide a visual buffer for these viewers. The existing highway at these locations contains three lanes of traffic in each direction.

The highway right of way was previously planted with trees, shrubs, and ground covers. These plantings have attained full maturity.

Slope fill widening is required between Sunrise Boulevard and Bradshaw Road. The width of the fill widening varies.

2.6.3 Environmental Consequences

Within the project limits, this portion of US 50 is not eligible or designated a scenic highway and the proposed project would not directly or indirectly damage any scenic resources. However, some negative impacts may occur as a result of the proposed project and include the following: potential glare and light impacts and visual impacts resulting from vegetation removal.

Build Alternatives

The visual impact of the project is minimal for the project LAU. The proposed bus/carpool lanes will be added to an existing paved median. The visual change would entail viewing of the additional vehicles on the bus/carpool lane, which is farthest away from viewers of the highway.

Similarly, highway users will see additional vehicles in the bus/carpool lanes, a minimal visual change for drivers. The major viewshed in the LAU is the highway itself as it passes through the landscape. There are no special views or natural resources in this fully developed LAU.

Using the visual quality formula ($VQ=(V+I+U)/3$), the visual quality rating within the project LAU is as follows:

VQ Before the Project= $(V+I+U)/3=(4+4+5)/3=4.33$

VQ After the Project= $(V+I+U)/3=(3.5+4+5)/3=4.16$

VQ Reduction= **-0.17** (a minimal reduction)

Sound walls are proposed at various locations within the project LAU (see Section 2.13). Sound wall construction would require the removal of freeway landscaping where walls are constructed. Generally, trees and shrubs would be removed to provide at least 5 feet of clear space for sound wall construction. For freeway motorists, new sound walls would constrain views in the same way as existing sound walls. Replacement landscaping is recommended in front of the new sound walls.

On the backside of the sound walls, views from residential properties are likely to be minimally affected. Most of the existing freeway landscaping behind the sound walls would remain and help screen them from view.

2.6.4 Avoidance, Minimization, and/or Mitigation Measures

Through the implementation of the following mitigation, minimization and avoidance measures, there will not be any direct, indirect, long-term, or unavoidable impacts on aesthetics or visual resources within the project area. There may be short-term impacts resulting from vegetation loss and placement of new structures; however, these impacts will be reduced to a level of less than significant under CEQA.

1. For new sound walls, the following measures are recommended:
 - a. Use materials similar to those placed along other portions of the corridor that are also compatible with native materials. Similar material, pattern, color and style are recommended to provide continuity and visual interest to the corridor landscape.
 - b. Prepare a landscape plan to provide appropriate landscape screening of sound walls to minimize the potential for graffiti and other nuisances. Appropriate landscape materials should be determined based on the placement of the wall and available setbacks. Generally, trees require a 30-foot setback, shrubs need approximately 20 feet and vines can be planted and trained to grow up the wall. A combination of these plantings may be appropriate for this area.
3. Incorporate appropriate aesthetic enhancements for any proposed retaining walls, sound walls, and slope paving. Designs should be in harmony with the existing highway materials and designs used for US 50 and vicinity.

2.6.4.1 Best Management Practices (BMPs)

1. Contour grade and round cut and fill slopes so as to reflect the contours of adjacent, undisturbed topography to the extent feasible. Grading operations should not result in angular landforms.
2. During clearing and grubbing, stockpile existing surface soils and duff from the construction site as part of the excavation work. Resurface all new cut/fill slopes with stockpiled material to enhance re-vegetation efforts.
3. Plant species native to the area shall be used when re-vegetation is being performed. Often, native grasses and shrubs are the first to re-colonize after a disturbance event such as a disease or fire. Use appropriate native species for the project.
4. Use appropriate erosion control methods to all disturbed areas.
5. Projects disturbing more than 2.4 acres (1 hectare) of land require a National Pollution Discharge Elimination System (NPDES) permit. Disturbance includes all newly paved land surfaces. This permit regulates all storm water discharges associated with significant construction activities. Compliance with the Storm Water Management Plan and Storm Water Quality Standards is also required. These regulations protect fish and wildlife as well as set standards for re-vegetation and erosion control. Develop plans and specifications necessary to comply with the NPDES and Storm Water Quality Standards.

2.7 CULTURAL RESOURCES

2.7.1 Regulatory Setting

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) among the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA takes the place of the Advisory Council’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans.

2.7.2 Affected Environment

Caltrans prepared a Historic Property Survey Report (HPSR) in April 2006 in accordance with the PA and CEQA. Two historic properties were identified in the HPSR: the Coloma Community Center and the Sacramento Valley Railroad. The HPSR is bound separately and available from Caltrans.

A Finding of Effect (FOE) was prepared in June 2006. The FOE included two historic properties: the Sacramento Valley Railroad and the Coloma Community Center (a former school). SHPO concurred with the FOE on August 30, 2006 (Appendix D). The SHPO concurred with the conclusion of the FOE that the project will not have an adverse effect on either of these historic properties.

Various sources of information were reviewed for the cultural resource analysis, including:

- National Register of Historic Places
- California Register of Historical Resources
- California Inventory of Historic Resources
- California Historical Landmarks
- California Points of Historical Interest
- State Historic Resources Commission
- Caltrans Historic Highway Bridge Inventory
- Archaeological Site Records (North Central Information Center, California State University, Sacramento)
- Other sources consulted:
 - Sacramento Preservation Roundtable, Sacramento Old City Association, Sacramento Archives and Museum Collection Center, City of Sacramento Preservation Director

Public participation and Native American consultation are an essential element of the Section 106 compliance process. The following agencies, tribes, groups, and individuals were contacted for this project:

Agencies:

- California Office of Historic Preservation
- Native American Heritage Commission

Tribes:

- Lone Band of Miwok Indians

- Shingle Springs Band of Miwok Indians
- Nashville-El Dorado Miwok
- Sierra Native American Council
- Miwok Tribe of the El Dorado Rancheria
- Wilton Rancheria
- United Auburn Indian Community of the Auburn Rancheria

Individuals:

- Billie Blue Elliston
- Rose Enos
- Randy Yonemura

In addition, three open house/public information meetings occurred on the following dates:

- Open House #1: June 21, 2005 (AM), Tsakopoulos Library Galleria, Sacramento, CA
- Open House #2: June 21, 2005 (PM), Tsakopoulos library Galleria, Sacramento, CA
- Open House #3, June 23, 2005 (PM), Mills Station Community Room, Rancho Cordova, CA.

Please see Section 4.1 for more information on these meetings.

On February 23, 2006, a project Area of Potential Effects (APE) was established in consultation with Richard Olson, Caltrans professionally qualified staff (PQS) in Archaeology, Andrew Hope, Caltrans PQS in Architectural History, and Steve Hetland, Project Manager. The APE maps are located in the Historic Property Survey Report. The archaeological APE was established as the limits of the proposed construction and includes all areas of direct impact, including both existing and proposed new right of way, temporary construction and drainage easements, and all proposed staging areas. The built environment APE for the proposed project comprises the area of direct impact and adjacent parcels that might be indirectly affected by project-related activities.

From Oak Park Interchange to east of Bradshaw Road, construction activities will be limited to the existing 36-foot highway median. At proposed sound walls and the White Rock pedestrian overcrossing, construction will occur near the existing right-of-way as well as minor ground disturbing activities on adjacent property through temporary construction easements. From Bradshaw Road to Sunrise Boulevard, construction activities will involve outside widening extending horizontally to the existing right-of-way and extending into two small areas of proposed additional right-of-way areas at the Zinfandel Interchange. Locations proposed for sound walls and pedestrian overcrossing(s) will also require construction near the exiting highway right-of-way as well as minor ground disturbing activities on adjacent property through construction easements. There were several minor changes to the project after the Section 106 process was completed, including the replacement of the Manlove pedestrian overcrossing, temporary construction easements for potential sound walls, and potential staging areas. Caltrans cultural resources staff reviewed the changes and determined that no additional studies were needed.

The vertical construction extent of the APE varies from approximately 6.5 feet to accommodate highway widening and modifications to storm drain systems, to 9.8 feet for construction of retaining walls, sound walls, highway lighting, and overhead sign structures. Construction of existing structure widening may require excavations of approximately 39 feet.

2.7.3 Environmental Consequences

The historic property survey evaluated 20 historic-era architectural resources and one previously identified archaeological resource within the APE. Only one property, the Coloma Community Center, was found eligible for national Register listing. In addition, the Sacramento Valley Railroad was

previously determined eligible for National Register listing, under Criteria A and B. The alignment of the Sacramento Valley Railroad crosses US 50 within the project APE at three locations. No other historic-era cultural, archaeological, or Native American resources were identified within or immediately adjacent to the project APE.

2.7.3.1 Historic

Build Alternatives

The NCIC record search also revealed that one historical site was located within the project APE. CA-SAC-428-H (P-34-455), the Sacramento Valley Railroad, was previously determined eligible for National Register listing and is designated California Historical Landmark No. 526 and No. 528. This railroad meets National Register Criteria A and B, as the state's first passenger railroad and for its association with Theodore Judah. The railroad passes through the project APE at three locations: east of 65th Street, west of Mayhew Road, and west of Sunrise Boulevard (Figures 2.1-1e, 1h, and 1o). In addition, five properties included on the National and California Registers of Historic Places and one property listed as a California State Historic Landmark were identified, all outside of the proposed project APE and therefore not affected by this project.

The historic resource survey for the project resulted in the identification of twenty historic-era architectural properties in which one, a 1920's structure that served as a school, and is now a community center, has been determined to be eligible for listing in the National Register of Historic Places under Criterion C, for its architectural distinction and as an important work of the prominent Sacramento architectural firm of Dean and Dean. The property, currently the Coloma Community Center, is located at the intersection of T and 47th Street (Figure 2.1-1c). The other 19 properties were determined by Caltrans to be not eligible for inclusion in the National Register. Additionally, no newly discovered archaeological resources were identified during the course of the study.

SHPO concurred with the above determinations, as stated in a letter to Caltrans dated June 15, 2006. On August 30, 2006, SHPO also concurred with Caltrans' a Finding of No Significant Effect regarding the impact of the project on the Sacramento Valley railroad and the Coloma Community Center (see Appendix D).

2.7.4 Avoidance, Minimization, and/or Mitigation Measures

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). Caltrans will work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

PHYSICAL ENVIRONMENT

2.8 FLOODPLAIN

2.8.1 Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The 100-year floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the 100-year floodplain.”

2.8.2 Affected Environment

Caltrans completed a Floodplain Hydraulic Study in November 2005 (bound separately). A copy of this study is available from the Caltrans District 3 office in Sacramento.

The Federal Emergency Management Agency (FEMA) designates areas exposed to flooding as a specific zone. Areas within this project that encroach into a flood zone are located between 26th Street to Elmhurst Viaduct and between the Brighton Overhead and Mayhew Overhead. These areas are designated by FEMA as zone “AR”, which indicates a flood hazard resulting from “the decertification of a previously accredited flood protection system which is determined to be in the process of being restored to provide a 100-year or greater level of flood protection.”

The encroachments are crosswise to the floodplain and occur outside of the floodway in the area FEMA designated as the Floodway Fringe.

According to the Caltrans Hydraulics Branch records and maintenance records, flooding has repeatedly occurred throughout this area for many years. The records indicate the most common cause of flooding are plugged drains and inlets on bridge decks and within the roadway.

2.8.3 Environmental Consequences

The level of risk associated with the addition of paved surface area within floodplain limits is low for several reasons. Much of the work will not occur within a floodplain. Areas where work does occur within a floodplain will be at an elevation greater than that of the base flood elevation with one important exception. For Alternative 10D-1, at the Oak Park Interchange, the US 50 highway surface descends below the base flood elevation. Pavement widening at this location will not change the probability or effects of flooding in this area, nor will it have a major encroachment on the floodplain.

There are no floodplain impacts associated with Alternative 10D-3.

2.8.4 Avoidance, Minimization and/or Mitigation Measures

At locations of nuisance flooding (grate plugging), flanker drainage inlets will be added and existing drainage inlets without side openings will be replaced. The default drainage inlet for this project is a type GDO (double grate w/ side opening). This inlet allows for spread and the added safety valve of the side opening. It also allows for longitudinal trunk main alignment that does not interfere with sound wall and barrier placement. Furthermore, slotted drains will be removed from the median and sag areas since records have shown that these facilities are ineffective.

Caltrans' Drainage Team has provided preliminary design for detention storage (both above ground and below) where appropriate and improvements to the conveyance channels to better serve the storm water treatment and conveyance needs of the project.

In the area of outside widening (Bradshaw Road to Sunrise Blvd.) paved concrete ditches are proposed to convey storm water. These are easier to maintain than rock-lined ditches.

2.9 HYDROLOGY, WATER QUALITY AND STORM WATER RUNOFF

Caltrans completed a Water Quality Technical Study in August 2005 and a Storm Water Data Report in September 2006 (bound separately). A copy of these study are available from the Caltrans District 3 office in Sacramento.

2.9.1 Affected Environment

The primary federal law regulating water quality is the Clean Water Act. Section 401 of the Act requires a water quality certification from the State Water Board or Regional Water Board when a project: 1) requires a federal license or permit (a Section 404 permit is the most common federal permit for Caltrans projects), and 2) will result in a discharge to Waters of the United States.

Section 402 of the Act establishes the National Pollutant Discharge Elimination System (NPDES) permit for the discharge of any pollutant (except dredge or fill material) into Waters of the United States. To ensure compliance with Clean Water Act Section 402, the State Water Resources Control Board (SWRCB) has issued a NPDES Statewide Storm Water Permit to regulate storm water discharges from Caltrans properties and activities. The permit regulates storm water discharges from the Caltrans right of way both during and after construction, as well as from existing facilities and operations.

In addition, the SWRCB has issued a construction general permit for most construction activities disturbing an area greater than one acre, or that have the potential to adversely impair water quality. Some construction activities may require an individual construction permit. All Caltrans projects that are subject to the construction general permit require a Storm Water Pollution Prevention Plan (SWPPP), while all other projects require a Water Pollution Control Program (WPCP). Subject to Caltrans review and approval, the contractor prepares both the SWPPP and the WPCP. The WPCP and SWPPP identify construction activities that may cause pollutants in storm water and measures to control these pollutants.

The project resides in an urban setting at an elevation range of approximately 10 - 70 feet above mean sea level. Average annual precipitation in the project is 20.8 in, which falls as rain primarily during November through March.

The project area is located within the drainages of the American River in the Sacramento Valley. The project lies equally within two distinct watersheds: the Lower Sacramento (USGA Cataloging Unit 18020109) and Lower American (USGA Cataloging Unit 18020111). There are two smaller storm water channels, highly urbanized, within the project limits (Boyd Channel and an unnamed channel) that convey a large portion of the storm water discharge to the American River. There are portions of the project area that also drain to localized sump/pump stations. These lift stations pump storm water to gravity flow pipelines that ultimately discharge to the American River.

There are numerous locations where storm water discharge is captured in combined sanitary sewer-storm drain facilities. These pipelines all ultimately terminate at the Sacramento Regional Wastewater Treatment Plant (SRWTP) before ultimately discharging to a smaller tributary of the Sacramento River. The combination systems are all located in the western portions of the project, west of Mayhew Road.

Storm water from the project limits discharges indirectly to the American River (Valley–American, HSA 519.21). The reach of the American River within the project limits is listed in Section 303(d) of the Water Quality Control Plan for the Central Valley Regional Water Board (Basin Plan) as impaired for water quality for the following constituent: mercury and unknown toxicity (both categorized as low priority). The project will not contribute mercury or unknown toxicity (this is usually associated with pesticides of unknown origin).

Neither the American River, nor Sacramento River are designated by the State Water Resources Control Board as an impaired water body. The Sacramento River is not 303(d) listed.

The groundwater gradients are all northerly and toward the American River. Soil permeability is expected to be highly mobile as much of the native and imported fill material is expected to be larger colluvium and alluvium deposits of an inert characteristic. Additionally, because the elevation of portions of the roadway are below sea level, many locations of springs and seeps are expected. Extensive underdrainage exists within these areas and will be perpetuated throughout and after completion of this project.

The beneficial uses for the American River include MUN; AGR, irrigation; IND, service supply; POW; REC-1, contact, canoeing and rafting; REC-2; WARM; COLD; MIGR, warm and cold; SPAWN, warm and cold; and WILD. Definitions of these beneficial uses are as follows:

AGR Agricultural Supply. Beneficial uses of waters used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.

COLD Cold Freshwater Habitat. Beneficial uses of waters that support cold water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.

IND Industrial Service Supply. Beneficial uses of waters used for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, geothermal energy production, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.

MIGR Migration of Aquatic Organisms. Beneficial uses of waters that support habitats necessary for migration, acclimatization between fresh and salt water, or temporary activities by aquatic organisms, such as anadromous fish.

MUN Municipal and Domestic Supply. Beneficial uses of waters used for community, military, or individual water supply systems including, but not limited to, drinking water supply.

POW Hydropower Generation. Beneficial uses of waters used for hydroelectric power generation.

REC-1 Water Contact Recreation. Beneficial uses of waters used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.

REC-2 Non-contact Water Recreation. Beneficial uses of waters used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.

SPWN Spawning, Reproduction, and Development. Beneficial uses of waters that support high quality aquatic habitat necessary for reproduction and early development of fish and wildlife.

WARM Warm Freshwater Habitat. Beneficial uses of waters that support warm water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.

WILD Wildlife Habitat. Beneficial uses of waters that support wildlife habitats including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.

2.9.2 Environmental Consequences

The potential for erosion and increased turbidity and sedimentation exists during and immediately after the construction phase of the project. Both build alternatives will have the same construction practices and will have the same potential for introducing pollutants into surface waters. To limit any sediments and pollutants from impacting drainages as well as diminish erosion in the project area, Best Management Practices (BMPs) will be implemented during construction (see below).

The total disturbed area of the project is anticipated to be greater than 42-acres. The project area is highly urbanized. The anticipated increases in design storm water discharge due to the proposed improvements are minor. The project intends to only affect a small portion of the total drainage area by placing additional impervious roadway surface. The additional lanes will have only minor impacts to design peak and total volume of storm water discharge. Furthermore, the preliminary drainage design intends to lessen these increases, where feasible, with appropriate in-pipe storage and detention and increased infiltration opportunities and travel times for the conveyance ditches.

Because of the complex storm water discharge characteristics for the project it may be necessary to partner with the subsequent downstream storm water purveyors (i.e., City of Sacramento and County of Sacramento – Department of Water Resources) to account for all treatment BMP requirements. At this time, contacts have been made with both agencies but no formal storm water treatment agreement discussed. The drainage designers hope to reduce a considerable portion of the potential increases in volume and peak discharge, such that no formal agreement will be necessary.

2.9.3 Avoidance, Minimization and/or Mitigation Measures

Adherence to the following is recommended to prevent receiving water pollution as a result of construction activities and/or operation of this section of US 50.

1. The project shall adhere to the conditions of the Caltrans Statewide NPDES Permit CAS000003, (Order # 99-06-DWQ), issued by the State Water Resources Control Board.
2. Construction projects with a disturbed area of more than one acre or by request of a Regional Water Quality Control Board require a Caltrans approved Storm Water Pollution Prevention Plan (SWPPP) containing project specific effective erosion and sediment control measures. These measures must address soil stabilization practices, sediment control practices, tracking control practices, and wind erosion control practices. In addition, the project plan must include non-storm water controls, waste management and material pollution controls. The disturbed soil area appears to exceed one acre and it is anticipated that a SWPPP level of temporary pollution controls will be specified for the project; Standard Special Provision 07-345 therefore shall be included in the PS&E to address these temporary construction water pollution control measures.
3. As directed by Caltrans' Storm Water Management Plan (SWMP) and the Project Planning and Design Guide (PPDG), an evaluation of the project using the most recent approved evaluation guide is essential in determining if the incorporation of permanent storm water runoff treatment measures shall be considered for this project. This evaluation should occur prior to construction.
4. If a SWPPP is specified, then a Notification of Construction (NOC) shall be submitted to the Central Valley Regional Water Quality Control Board at least 30 days prior to the start of construction.

Proposed Design Pollution Prevention BMPs

Downstream Effects / Potentially Increased Flow

Due to the additional impervious areas added by this project, there will be small increases in surface runoff to roadway storm drain systems. The additional volume and peak discharges are not expected

to be substantial. Many culverts require modification and new drainage facilities are required because of new roadway drainage or inadequate existing drainage conveyance. Existing outlets and proposed outlets will be extended and rock energy dissipaters planned.

Slope/Surface Protection Systems

New cut and fill slopes will have a maximum steepness of 1.5:1 as recommended by Caltrans' Geotechnical Services Branch. This is the maximum steepness of the existing slopes, which are currently performing well. Cuts that are not rocky, as well as new fill slopes, will receive erosion control. Existing ditches and swales have been perpetuated to the maximum practical extent. Track-walking of new slopes to reduce runoff velocity will be included in the construction contract. Slope rounding will be included where feasible to prevent slumping of the upper colluvial layer of soil. Erosion Control Type D and the planting of tree seedlings on new slopes will be included in the project contract.

Concentrated Flow Conveyance Systems

Existing culverts, channels, and ditches are maintained where practical. Three culverts will be extended and rock slope protection is provided at culvert outlets and in channels where appropriate.

Preservation of Existing Vegetation

Existing vegetation has been preserved to the maximum practical extent. Clearing will only be allowed to 10 feet beyond the proposed cuts and fills, with the exception of specific locations needed for equipment access.

Permanent Treatment BMPs

This project is possibly exempt from consideration of treatment BMPs in accordance with the May 28, 2004 revision to the Project Planning & Design Guide. Design efforts are considering treatment BMP's as a means to minimized partnering costs and providing adequate storm water discharge treatment.

Proposed Temporary Construction Site BMPs

The contractor will be required to prepare a SWPPP which will include, as a minimum, the use of fiber rolls, check dams, two stabilized construction entrances, and a concrete washout area as temporary construction site BMP's.

2.10 PALEONTOLOGY

PaleoResource Consultants of Sacramento, California, completed a paleontological resource assessment of the project in March 2006 (bound separately). The objectives of the assessment were to identify specific fossil localities and sensitive geologic formations within the proposed project area, make recommendations for reducing project related impacts to fossil resources, and assist Caltrans with compliance responsibilities under CEQA.

2.10.1 Regulatory Setting

Paleontological resources are classified as non-renewable scientific resources and are protected by the California Environmental Quality Act, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code Section 5097.5. The Society of Vertebrate Paleontology (SVP) has established professional standards for assessment and mitigation of adverse impacts on paleontological resources. Design, construction, and operation of the proposed project will be conducted in accordance with local, state, and federal laws, ordinances, regulations, and standards (LORS) applicable to paleontological resources.

2.10.2 Affected Environment

2.10.2.1 Geographic Location

The project site is located on the eastern margin of the Sacramento Valley, near the westernmost foothills of the Sierra Nevada, and just north of the geographic center of the State of California in an area known as the Central Valley Physiographic Province. The Central Valley Physiographic Province is located between the Sierra Nevada Physiographic Province on the east and the Coast Ranges Physiographic Province on the west. The general project area is bounded on the west by the floodplain of the Sacramento River and on the east by a gently inclined alluvial fan, which heads in the Sierra Nevada.

2.10.2.2 Geologic Setting

In the Project vicinity, coalesced (combined) alluvial fans have been created by rock debris deposited by the American River, Cosumnes River, Morrison Creek, and adjacent smaller streams, all of which drain off the foothills of the Sierra Nevada Range. In the Project vicinity, sediments composing the coalesced American-Cosumnes River alluvial fan have been divided into four stratigraphic units, from oldest to youngest.

In the most recent and most detailed geologic mapping available, the project right of way has exposed at the surface continental deposits of the Riverbank Formation, Modesto Formation, and unnamed Quaternary alluvium.

Riverbank Formation. The Riverbank Formation consists of weakly consolidated reddish-bright of wayn siltstones, sandstones, and pebble to cobble conglomerates with a few thin intervals of brick-red claystone. Where exposures were available along the east half of the U. S. 50 right of way, coarse cobble conglomerates were abundant. The age of the Riverbank Formation is between 130,000 and 450,000 years before present (BP), Middle Pleistocene.

Modesto Formation. The Modesto Formation is composed of interbedded, largely unconsolidated, and poorly sorted, bright of waynish sandstone and siltstone with lesser amounts of pebble to cobble conglomerate. These beds are primarily fluvial deposits and are believed to represent the depositional cycle between two major glacial stages in the Sierra Nevada. The age of the Modesto Formation is between about 42,400 and 12,000 years BP, Late Pleistocene.

Unnamed Quaternary Alluvium. The unnamed Quaternary Alluvium was for gravels, sands, silt, and clay deposited along the channels of modern streams and on their flood plains. This informal name is also applied to the lowest and therefore youngest river terraces along the American River north of US 50.

2.10.3 Environmental Consequences

Build Alternatives

The literature review and University of California Museum of Paleontology (UCMP) in Berkeley, California, archival search conducted for this inventory documented no previously recorded fossil sites within the actual project right of way. However, sediments of both the Riverbank and Modesto Formations have yielded fossilized remains of extinct species of continental vertebrates at numerous previously recorded fossil sites in the Central Valley. A number of fossil sites have been reported from sediments of these formations in other exposures within one mile of the US 50 right of way. In addition, fossil remains were found at a previously unrecorded fossil site during the field survey of the proposed project right of way and vicinity conducted during the paleontological assessment.

Riverbank Formation. Sediments of the Riverbank Formation have yielded the fossilized remains of Late Pleistocene plants and animals from numerous previously recorded fossil sites in the Sacramento Valley. Fossil vertebrates of Rancholabrean land-mammal age have been reported from Riverbank Formation sediments near their type area and at numerous other scattered locations along the eastern margin of the Central Valley. Fossils previously reported from the Riverbank Formation include clams, fish, turtles, frogs, snakes, birds (including geese), bison, mammoths, mastodons, ground sloths, camels, horses, deer, dire wolves, coyotes, rabbits, rodents, and land plant remains (including wood, leaves, and seeds). Within Sacramento County, the Riverbank Formation has produced important fossil remains from more than a dozen separate localities. Additional unidentified bones and petrified wood from the Sacramento area were reported, but without specific locality information. The UCMP lists eight localities that have produced vertebrate fossils from the Riverbank Formation within Sacramento County.

During excavations for the construction of a Sacramento Municipal Utility District (SMUD) power plant in south Sacramento, approximately one (1) mile south of US 50, a paleosol (fossil soil horizon) was discovered in Riverbank Formation. This paleosol contained unidentifiable ichnofossils, including root and burrow molds and casts. The presence of this paleosol and others in the Riverbank Formation indicates that scientifically important fossil specimens may be discovered from paleosol horizons in the Riverbank Formation during future excavations in this vicinity. During a field survey of prospective fossiliferous sediments near the project right of way on January 4 and 5, 2006, ichnofossils (burrow casts and root casts and molds) were found in a series of paleosols in Riverbank Formation sediments exposed in a pit excavated for removal of a leaking underground tank along Folsom Boulevard. This locality is less than one-quarter (0.25) mile north of the proposed project right of way.

These fossil remains previously recovered from the Riverbank Formation are scientifically important because the taxa they represent had been previously unreported or only very rarely reported from the fossil record of California. Moreover, continental vertebrate remains are comparatively rare in the fossil record. Paleontological data derived from a study of the fossil remains, in conjunction with geologic (particularly geochronologic, sedimentologic, and paleomagnetic) evidence, have been important in documenting the origin and age of the Riverbank Formation and in reconstructing the Pleistocene geologic history of the Sacramento Valley and Sierra Nevada.

Since fossil vertebrates have been previously reported from this formation and since depositional conditions observed in exposures in the vicinity of the project right of way appear to be favorable for the preservation of fossils, the Riverbank Formation is judged to have high sensitivity. There is a high

probability of adverse impacts on paleontological resources resulting from ground disturbance during project excavations in sediments of the Riverbank Formation.

Modesto Formation. Fossil vertebrates of Rancholabrean land-mammal age and fossil wood have previously been reported from sediments of the Modesto Formation near its type area and at numerous other scattered locations along the east side of the Central Valley. Seven sites in Sacramento County yielded Rancholabrean vertebrate fossils, including several UCMP localities. Some, if not all, these fossil sites would presumably be referable to the Modesto Formation. The mammals previously collected from this stratigraphic unit include mammoths, bison, horses, camels, ground sloths, and various rodents.

The age of these Late Pleistocene Rancholabrean faunas is primarily based on the presence of Bison, along with many mammalian species, which are inhabitants of the same area today. Since it is possible that additional important paleontological resources could be found in sediments of the Modesto Formation, this stratigraphic unit has high sensitivity for paleontological resources.

Unnamed Quaternary Alluvium. During the geological and paleontological literature review and museum archival records searches for this paleontological resource impact assessment, no previously recorded fossil sites in the unnamed Quaternary alluvium. During a field survey of prospective fossiliferous sediments on January 4 and 5, 2006, there were no indications that the unnamed Quaternary alluvium might be fossiliferous.

Summary. Although no fossils are known to directly underlie the proposed project right of way, the presence of fossil sites in alluvial deposits of the Riverbank and Modesto Formations elsewhere suggests that there is a high potential for additional similar fossil remains to be uncovered by excavations in these formations during project construction. Under the Society of Vertebrate Paleontology (SVP) criteria, both these formations have a high sensitivity for producing additional paleontological resources. Identifiable fossil remains recovered from these formations during project construction could be scientifically important.

Identifiable fossil remains recovered during project construction could represent new taxa or new fossil records for the area, for the State of California, or for a formation. They could also represent geographic or temporal range extensions. Moreover, discovered fossil remains could make it possible to more accurately determine the age, paleoclimate, and depositional environment of the sediments from which they are recovered. Finally, fossil remains recovered during project construction could provide a more comprehensive documentation of the diversity of animal and plant life that once existed in Sacramento County and could result in a more accurate reconstruction of the geologic and paleobiologic history of the Central Valley and Sierra Nevada.

Potential impacts on paleontological resources resulting from construction of the proposed project primarily involve terrain modification (excavations and drainage diversion measures). Paleontologic resources, including an undetermined number of fossil remains and unrecorded fossil sites; associated specimen data and corresponding geologic and geographic site data; and the fossil-bearing strata, could be adversely impacted by ground disturbance and earth moving associated with construction of the project. Direct impacts could result from vegetation clearing, grading, widening of road cuts, and any other earth-moving activity that disturb or bury previously undisturbed fossiliferous sediments, making those sediments and their paleontological resources unavailable for future scientific investigation. The planned site clearing, grading, and deeper excavation at the site could result in adverse impacts to paleontological resources. In addition, the construction of supporting facilities, such as temporary construction offices, letdown areas, and parking areas, have potential to cause adverse impacts on paleontological resources, as they also will involve extensive new ground disturbance. Thus, any project-related ground disturbance could have adverse impacts on paleontological

resources. However, with a properly designed and implemented mitigation program, these impacts would be reduced to less than significant.

2.10.4 Avoidance, Minimization and/or Mitigation Measures

Caltrans recommends monitoring where excavation or road cuts will disturb fossil-bearing sedimentary strata. The goal of monitoring is to reduce the adverse impact on paleontological resources within the project area by collecting scientifically important vertebrate fossils. The contractor undertaking monitoring will adhere to the paleontological mitigation plan that detail the procedures for collecting vertebrate fossils, including recording pertinent geographic and stratigraphic information, stabilization (preservation) methods for the specimens, and make provisions for the remains to be accessioned into the collections of an appropriate repository, and catalogued for future scientific study. Following completion of monitoring, collection, and specimen processing, the contractor should generate a final report detailing the results of the mitigation program. A paleontological mitigation plan for the project was prepared in November 2004 (bound separately).

2.11 HAZARDOUS WASTE / MATERIALS

An Initial Site Assessment was completed for the project in July 2006. A copy is available from Caltrans District 3.

Hazardous materials and hazardous wastes are regulated by various state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal RCRA, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

2.11.1 Affected Environment

An Initial Site Assessment (ISA) was completed for the project in July 2006. An ISA protects construction workers and the public from exposure during construction and protects Caltrans from liability for contamination cleanups required by the Clean Water Act of 1972 and all its amendments. The ISA documents those properties that have a potential for hazardous waste issues that could affect construction of the project. Hazardous waste issues include impacts to soil and groundwater due to leaking underground storage tanks (USTs), releases to the land, and highway spills.

It is Caltrans policy to avoid all potential aspects of hazardous waste issues, whenever possible. If involvement becomes necessary prior to, during and/or after construction, protection of employees, workers and the community would be implemented. Caltrans would confirm and document suspected hazardous waste issues, and attempt to have responsible parties perform cleanup activities.

The ISA involved a field review and a search of regulatory agency files, published government documents, a review of current aerial photographs, Sanborn fire insurance maps, environmental data resources reports, and other sources.

Polluters of groundwater are regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB), whereas polluters of land in the study area are regulated by the Sacramento County Hazardous Materials Division (SCHMD).

Based on the results of site reconnaissance, historical research, and regulatory file reviews, 31 properties were identified as having potential hazardous waste issue impacts to the project. Two properties were assigned high rankings based on their known and potential impacts to soil and groundwater, as well as their locations within the project boundaries or adjacent to the project with the potential for impacts to extend beneath the project. Four properties were assigned medium rankings based on the same criteria. The remaining properties were assigned low rankings due to their lack of noteworthy impacts to soil and groundwater and/or their distance from the project. Properties receiving low rankings are considered to have no hazardous waste issues that can have impacts to the project and were not addressed further. However, the location and type of hazardous waste issues of these low ranking properties are identified in the ISA report (bound separately).

At several of the properties identified with a high or medium ranking, additional soil and/or groundwater investigation is recommended. The investigation would involve the drilling of test holes and the collection of samples for laboratory analysis. The locations of the properties receiving high or medium rankings are depicted on the Figures 2.1-1b, 1d, 1e, and 1p and summarized on Table 2.11-1 at the end of this section.

High Ranked Sites:

- **Union Pacific Railroad Tracks and Regional Transit Light Rail Tracks, Map ID No. 32.** Railroad and light rail tracks cross beneath US 50 near Redding Avenue. Based on the historic railroad activities, affected soil and groundwater may be present beneath the project. Investigation activities should include soil and groundwater sampling for petroleum hydrocarbons, pesticides and metals.
- **Aerojet General Corporation, Map ID No. 48.** Perchlorate has been detected in groundwater approximately 9,000 feet west of the Aerojet property boundary and is likely located beneath the project. Although affected groundwater is likely located beneath the project, the shallowest impacts are reported at depths greater than 75 feet; therefore, any site excavations proposed within the impacted areas (maximum 40 feet below ground surface) will be shallower than the documented impacts.

Medium Ranked Sites:

- **Stewarts (Savarino Trust), 1876 Stockton Boulevard, Map ID No. 24.** This facility is located adjacent to US 50. Groundwater impacts are not defined at this facility and likely extend beneath the project. The owner has proposed advancement of a boring on Caltrans property, pending access from Caltrans. New columns will be required within the US 50 median in order to construct new decking. Excavations on the order of 40 feet below ground surface (bgs) will be required to install the columns; therefore, the potential exists for contact with petroleum hydrocarbon-impacted groundwater during future construction activities. If investigation activities are not performed by the facility owner, investigation activities performed by Caltrans should include groundwater sampling for petroleum hydrocarbons.
- **Nickel Property, 1744 36th Street, Map ID No. 25.** This facility is located adjacent to US 50. Petroleum hydrocarbon-impacted groundwater extends from the facility across R Street to the south. The groundwater flow direction beneath the facility is reported toward the southwest,

toward the project. Although the proposed improvements are located within the median of US 50, and the affected groundwater does not likely extend beneath the project, impacted groundwater may extend beneath the Stockton Boulevard onramp to westbound US 50, and if onramp or off ramp alternatives change, the potential exists for contact with petroleum hydrocarbon-impacted groundwater during future construction activities. Investigation activities should include groundwater sampling for petroleum hydrocarbons.

- **Chevron, 1906 65th Street, Map ID No. 27.** This facility is located adjacent to US 50. The groundwater flow direction at this facility is toward the southwest, toward the project. The SCHMD has requested installation of a downgradient groundwater monitoring well across US 50 within the project, pending access from Caltrans. Groundwater impacts from this facility may or may not extend beneath the project. If results of groundwater samples collected from the proposed boring show petroleum hydrocarbon impacts, the potential exists for contact with petroleum hydrocarbon-impacted groundwater during future construction activities. If investigation activities are not performed by the facility owner, investigation activities performed by Caltrans should include groundwater sampling for petroleum hydrocarbons.
- **Former Standard Oil Company, 37th Street and Stockton Boulevard, Map ID No. 49.** This facility was located onsite in the 1950s prior to construction of US 50. Due to the unknown petroleum hydrocarbon impacts at this property resulting from the former presence of USTs, a site investigation should be performed at this property to evaluate whether or not future construction activities on US 50 may be affected. Investigation activities should include soil and groundwater sampling for petroleum hydrocarbons.

Asbestos, Lead, USTs

In addition to the known and potential impacts to the properties mentioned above, there is a potential for the presence of asbestos and lead-based paint on the bridges within the site boundaries. Asbestos and lead-based paint surveys are recommended for the bridges affected by future construction activities.

Asbestos-containing concrete pipes are also reportedly located within the site boundaries. In areas where asbestos-containing concrete pipes are cut in order to accommodate proposed drainage structures, proper handling and disposal of the piping would be required.

Aerially deposited lead due to vehicle emissions may also be present on the shoulders of US 50. Aerially deposited lead site investigations are recommended to determine the potential presence of lead in soil within the site limits.

The results of site reconnaissance and regulatory file reviews did not indicate the presence of USTs within the existing Caltrans right of way. However, undocumented USTs associated with former facility operations may exist. If encountered during excavations for pilings, new signs, outside lane widening, ramp modification, installation of drainage, or construction of sound walls and retaining walls at the project, USTs and associated piping should be removed in accordance with SCHMD requirements. Septic systems, leach fields and/or water wells, if encountered, should also be properly abandoned in accordance with SCHMD requirements.

Hazardous Waste Spills - US 50

The following hazardous waste spill occurred along US 50 within the project limits.

Westbound 50 at 65th Street. In 1990, a release of approximately 125 gallons of diesel fuel to US 50 was reported after a trailer jack-knifed, rupturing a diesel tank. The release was cleaned up by American Environmental Contractors, and additional investigation was not required by the SCHMD. Based on the completed cleanup activities, adverse impacts to the project is not expected.

According to the Caltrans *Hazardous Materials Spill Contingency Plan*, all hazardous spills or releases (regardless of size), must immediately be reported to the Caltrans district dispatch office by the California Highway Patrol and reports describing the incident must be filled out. Specific contingency plans are referenced in the *Hazardous Materials Spill Contingency Plan* in the event that flammable or toxic vapors are released, a fire or explosion occurs, or a hazardous material is released.

The party responsible for the spill shall be given the opportunity to clean up the spill; however, if the responsible party does not have a means to clean up the spill, Caltrans will contact a pre-approved contractor to perform cleanup activities.

2.11.2 Environmental Consequences

Build Alternatives

Benefits to the quality of groundwater will likely occur within the site boundaries due to the investigation of potential hazardous waste properties and subsequent remediation activities of affected soil and groundwater.

During site investigation, remediation activities, and subsequent construction activities, public health and the health of the construction workers could potentially be affected by airborne dust particles containing heavy metals, petroleum hydrocarbons, asbestos, and lead-based paint from bridge materials. To minimize impacts to the public and construction workers, health and safety plans would be prepared that address potential effects of the various chemical compounds that could be encountered at each property with potentially hazardous waste issues. The health and safety plans would include evaluations of the suspected chemical hazards including symptoms of exposure and emergency treatment, appropriate use of personal protection equipment, and air monitoring.

Based on available records, it does not appear that there have been large highway spills on US 50 within the site boundaries that have affected or had the potential to affect a large population.

No-Build Alternative

In the event that the No Build Alternative is adopted, potential hazardous waste issues will not be addressed.

2.11.3 Avoidance, Minimization, and/or Mitigation Measures

It is Caltrans policy to avoid all potential aspects of hazardous waste, whenever possible. If involvement becomes necessary prior to, during and/or after construction, protection for employees, workers and the community would be implemented. Confirmation and documentation of suspected hazardous waste issues will be performed, and an attempt will be made to have responsible parties perform the cleanup activities.

For affected soil encountered beneath the project, possible cleanup methods include excavation and disposal of the affected soil at appropriately permitted landfills, aeration of soil in place or aboveground, and bioremediation. Selection of a soil cleanup method will be dependent on the severity of the impacts, the volume of impacted soil, access restrictions to the property, soil conditions, depth to groundwater, and available finances.

For affected groundwater encountered beneath the project, possible cleanup methods include removal of affected water, with subsequent disposal or treatment. Treatment of the affected groundwater may consist of aeration or carbon filtration prior to discharge or injection into the aquifer. Air sparging is another possible cleanup method for groundwater, where air is injected below the groundwater surface in an attempt to strip volatile compounds from the water. Increasing the oxygen content of the groundwater may also be a benefit to natural biodegradation of the compounds. Selection of a

groundwater cleanup method will be dependent on the severity of the impacts, the volume of impacted groundwater, depth to groundwater, soil conditions, and available finances.

Upon selection of a preferred alternative, Caltrans will perform site investigations for all identified properties to confirm or dismiss potential hazardous waste issues. Upon confirmation of hazardous waste issues, responsible parties will be sought for appropriate remediation.

Table 2.11-1. Potential Hazardous Facilities (High and Medium Ranking)

MAP ID #	SITE NAME	ADDRESS	CHEMICAL OF CONCERN	AFFECTED MEDIA	CASE STATUS	RANK
24	Stewarts (Savarino Trust)	1876 Stockton Boulevard	Petroleum Hydrocarbons/TCE	Soil and Groundwater	Site Assess. ²	Medium
25	Nickel Property	1744 36 th Street	Petroleum Hydrocarbons	Soil and Groundwater	Remediation	Medium
27	Chevron	1906 65 th Street	Petroleum Hydrocarbons	Soil and Groundwater	Site Assess.	Medium
32	Union Pacific Railroad and Regional Transit Light Rail	Near Redding Avenue	Petroleum Hydrocarbons/Pesticides/ Metals (slag)	Unknown	N/A	High
48	Aerojet Groundwater Plume	Sunrise Boulevard Interchange	Solvents	Groundwater	Remediation ³	High
49	Former Standard Oil Company	37 th Street and Stockton Boulevard	Petroleum Hydrocarbons	Unknown	N/A ¹	Medium
---	US 50 Shoulders	9 th Street to Sunrise Boulevard	Lead	Soil	N/A	High
---	US 50 Bridges	9 th Street to Sunrise Boulevard	Asbestos/ Lead-Based Paint	Bridge Materials	N/A	High
---	Hwy 50 Concrete Pipe	9 th Street to Sunrise Boulevard	Asbestos	Concrete Pipe	N/A	High

1 = Facility identified on Historical Sanborn Maps. No regulatory records available.

2 = Additional investigation within Caltrans right-of-way to be performed by facility owners. Caltrans Encroachment Permits pending.

3 = Although groundwater impacts from Aerojet extend beneath the site boundaries, impacted groundwater is reportedly located at depths greater than 75 feet bgs, and would not likely be encountered during the proposed construction activities.

2.12 AIR QUALITY

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards, established by the US Environmental Protection Agency (USEPA), are called National Ambient Air Quality Standards (NAAQS).

Under the 1990 Clean Air Act Amendments, the US Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to the State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels - the regional level and the project level. The proposed project must conform at both levels to be approved.

Regional level conformity in California involves how well the region is meeting the standards set for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and particulate matter (PM). California is in attainment (meeting the prescribed standards) for the other criteria pollutants. At the regional level, Regional Transportation Plans (RTPs), also titled Metropolitan Transportation Plans (MTPs) in metropolitan planning areas, are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as SACOG, and the appropriate federal agencies, such as FHWA, make the determination that the RTP is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires "hot spot" analysis if an area is "nonattainment" or "maintenance" for CO and/or particulate matter. A region is a "nonattainment" area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA and CEQA purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the CO standard to be violated, and in "nonattainment" areas the project must not cause any increase in the number and severity of violations. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Environmental laws require Caltrans to analyze the impact of proposed transportation projects on the air environment. The usual procedure is to perform project-level impact analysis to predict future pollutant levels for considered project alternatives including the "No Build" condition, and make comparison with the ambient air quality standards.

Air quality impacts are generally assessed using one of the three possible scales of analysis: microscale, mesoscale, or macroscale. The dynamics of transport, dispersion, and chemical transformation for particular pollutants dictate which type of analysis is the most appropriate. While transportation facilities as a whole make contributions to both mesoscale and macroscale air quality problems, the impacts of a single project do not. Therefore, project-level air quality analyses only consider impacts within the microscale region. This region is defined as the area within approximately 980 feet of the transportation facility. Carbon monoxide (CO) is considered the foremost microscale

problem related to transportation sources, and was analyzed to determine air quality impacts at the microscale level.

Caltrans prepared an Air Quality Report in September 2006. A copy is available from Caltrans District 3 in Sacramento.

2.12.1 Affected Environment

The proposed project is located within the Sacramento Valley Air Basin. Sacramento County is designated by the USEPA as an attainment area (an area attaining the air quality standard) for CO and fine particulate matter (PM_{2.5}), and non-attainment area for particulate matter 10 microns or less in diameter (generally designated as PM₁₀) and ozone (O₃).

The proposed project is located in Sacramento County, and Sacramento County is designated as in attainment/unclassified for PM_{2.5}. As such, PM_{2.5} conformity (including hot spot analysis) requirements do not apply.

2.12.1.1 Air Quality Standards

Federal and State Air Pollutants and Ambient Standards

Air quality impacts are evaluated by comparing predicted air pollutant concentrations to the NAAQS established by the USEPA. An impact is considered significant if the predicted concentration exceeds the NAAQS.

National Standards have been established for the following air pollutants:

1. Ozone (O₃)
2. Carbon Monoxide (CO)
3. Nitrogen Dioxide (NO₂)
4. Sulfur Dioxide (SO₂)
5. Suspended Particulate Matter 10 microns or less (PM₁₀)
6. Fine Particulate Matter (PM_{2.5})
7. Lead (Pb)

The California Air Resources Board (CARB) has adopted additional standards for these and additional pollutants.

A project level conformity analysis has been prepared showing that the project will conform with the State Implementation Plan (SIP), including the localized impact analysis for CO and PM₁₀ required by 40 CFR 93.116 and 93.123. This project is not considered a Project of Air Quality Concern regarding PM₁₀ as defined in 40 CFR 93.123(b)(1) and meets the requirements of the Clean Air Act and 40 CFR 93.116, therefore, an explicit PM₁₀ hot-spot analysis is not required.

Direct emissions from automobiles contain mainly hydrocarbons, NO₂, and CO. Indirect emissions include ozone and PM₁₀. Lead emissions from automobiles have declined in recent years through the increased use of unleaded gasoline. Ozone is formed when nitrogen oxides (NO_x) and reactive organic gases (ROG) react in the presence of sunlight. PM₁₀ emissions from vehicular source are largely due to aerosols formed in the atmosphere from NO_x and ROG compounds and, to a lesser extent, directly from vehicle travel over materials previously deposited on the travel surface or tire and brake wears. Due to their formation and/or dispersion patterns, hydrocarbons, NO₂, and O₃ can only be reasonably analyzed from a regional perspective. PM₁₀ is a project-level pollutant as well as a regional pollutant. CO is a relatively stable and site-specific pollutant with major concentrations found immediately adjacent to roadways. It is analyzed to determine air quality impacts at the project specific microscale level.

Table 2.12-1 at the end of this section summarizes the National and California standards. The NAAQS are comprised of both primary and secondary standards. Primary standards are designed to protect public health, while secondary standards protect public welfare from known or anticipated adverse effects of air pollutants (e.g., reduced visibility or property damage). For the purposes of this project, the significance of an impact will be based upon comparison with the more stringent primary standards.

The primary NAAQS and California Standards are based on medical studies that relate pollutant concentration and duration of exposure to morbidity and mortality rates for “at risk” populations. The standard must therefore specify both a concentration and an averaging time. Higher concentrations can be tolerated when exposure (or averaging) times are shorter (Table 2.12-1). The averaging time plays a critical role in the modeling process.

The NAAQS for CO is established for two averaging times: 1-hour and 8-hours. These standards are not to be exceeded more than once per year. The procedures described in the Caltrans’ Transportation Project-Level CO Protocol are designed to estimate the second highest 1-hour and 8-hour annual CO concentrations (called the second annual maximum) (Institute of Transportation Studies 1997). If either of these values exceed the NAAQS, the impact is considered significant. This approach is often referred to as a “worst case” analysis. Predictions made for an assumed set of concurrent, worst case conditions guarantee a conservative estimate of the impacts. The California CO standards are not to be exceeded at any time.

2.12.1.2 Attainment Status and Regional Air Quality Plans

Federal and State air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain the standards. Under federal law, the plans are referred to as State Implementation Plans (SIPs). In California, the SIP is composed of regional air quality plans from throughout the state.

Authority for air quality planning is divided. Under California law, air pollution control districts and air quality management districts have full regulatory authority for achieving State standards. In Sacramento County, the Sacramento Metropolitan Air Quality Management District (SMAQMD) holds that authority. Under federal law, however, the designated responsible air quality planning agency is the Sacramento Area Council of Governments (SACOG).

In addition to planning responsibilities, SMAQMD has permitting authority over stationary sources of pollutants. Authority over mobile sources of pollutants is given to the CARB.

Under both the California Ambient Air Quality Standards (CAAQS) and NAAQS, Sacramento County is currently designated as in “attainment” for CO and PM_{2.5} and “non-attainment” for O₃ and PM₁₀.

2.12.1.3 Local Carbon Monoxide Impact Analysis

Ambient CO concentrations associated with a transportation project are the sum of background CO levels and the project contribution from vehicular emissions. Background CO is attributable to a variety of emission sources that exist locally and outside of the highway network being specifically modeled in the microscale analysis.

Computer simulation models have been used to estimate project-related CO concentrations for this project. The estimation of project-related CO concentrations is based on three major categories of data:

1. An estimate of the number of vehicles (peak hour traffic volumes);
2. Emission factors (the rate of CO emitted by vehicles); and
3. Dispersion patterns (how CO from vehicles disperses).

The analysis of CO concentrations was conducted following methods described in Caltrans' Transportation Project-Level Carbon Monoxide Protocol (Institute of Transportation Studies 1997).

The air quality microscale dispersion model used for this air quality report, CALINE4, is a line source model developed by Caltrans. It is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway. Given source strength, meteorology and site geometry, CALINE4 can predict pollutant concentrations for receptors located within 1,500 feet of the roadway.

The CALINE4 model was used to estimate one-hour average CO concentrations at receptor locations. A persistence factor of 0.7 was applied to the one-hour average values to estimate eight-hour average values (Institute of Transportation Studies 1997).

Location Analyzed

High concentrations of CO are typically a localized occurrence. High concentrations of CO due to on-road vehicles are associated with high traffic volumes and heavily congested roadway facilities. The CO analysis conducted for the project focused on the locations considered to have the greatest potential for experiencing high CO concentrations based on a review of the project traffic study.

Receptor Locations

The CALINE4 model estimates CO concentrations at specific locations. These locations are referred to as "receptors", and represent specific locations in the study area. Receptors were located according to guidelines presented in the Transportation Project-Level Carbon Monoxide Protocol (Institute of Transportation Studies 1997). Thirty-five receptors (R1 through R24) were analyzed for purposes of this report. For the locations of these receptors, see Figures 2.1-1a to 1p.

Background Carbon Monoxide Levels

The CARB monitoring station located at T Street in Sacramento was used as a representative for background CO information. The maximum daily 1-hour data for the last three years of the winter months was analyzed at this monitoring station. The highest value for the maximum daily 1-hour measurement was 5.6 parts per million (ppm). Hence, 5.6 ppm was selected as background CO levels for input into the CALINE4.

Traffic Data

The CALINE4 modeling analysis used peak hour traffic data from the traffic analysis conducted for the proposed project. The traffic data included peak hour volumes, interchange geometric, and interchange operational characteristics. Traffic data for the 2010, 2020, and 2030 conditions were used.

Emission Factors

On-road motor vehicle emission rates, usually expressed in grams per vehicle mile, were used in the analysis of CO concentrations. The estimate of motor vehicle emission rates takes into account the combined effects of vehicle operating mode, types of vehicles, temperature, vehicle speed, year, and altitude. Motor vehicle emission rates used for this project were generated from CARB emission factor model EMFAC2002 (Version 2.2). Emission rates used were based on the following data:

- The project location is at 200 feet elevation,

- The adjusted January mean minimum temperature is 40° F,
- The project location has a motor vehicle inspection and maintenance program, and
- The traffic mix listed in Appendix A of the air quality report.

The output files for EMFAC2002 (Version 2.2) are included in Appendix A of the air quality report.

Meteorology

Assumed meteorological conditions are important factors in estimating CO concentrations. The meteorological conditions assumed for this project are from the Transportation Project-Level Carbon Monoxide Protocol (Institute of Transportation Studies 1997). The following meteorological assumptions were used:

- Wind speed (U) = 1.6 ft/sec
- Wind Direction = Worst Case
- Atmospheric Stability Class = 7(G)
- Mixing Height = 3,281 feet
- Sigma Theta = 5 degrees
- Surface Roughness = 39.4 inches
- Temperature = 40° F
- Altitude = 200 feet

2.12.2 Environmental Consequences

Build Alternatives

2.12.2.1 Carbon Monoxide

A summary of the results of the CALINE4 CO analysis for existing, 2010, 2020, and 2030 No Build and Build conditions are depicted in Tables 4, 5, 6, and 7 of the air quality report. The highest 1-hour and 8-hour values for each alternative are include in Table 2.12-2.

The results of all Build alternatives are below both federal and state air quality standards; as a result, the impact is considered less-than significant.

The CALINE4 output files are included in Appendix B of the air quality report (bound separately).

2.12.2.2 Particulate Matter

Based on PM₁₀ monitoring records of SMAQMD near the project area at Branch Center Road Air Quality Monitoring Station, there is no PM₁₀ exceedance of the primary Federal 24-hour standard of 150 µg/m³. Therefore, there is no PM₁₀ violation to NAAQS. The project is not located in a climate zone that requires heavy wintertime sanding operation for snow control nor does it have unpaved shoulder in loose material. The project's build alternatives will not increase vehicle miles of travel (VMT) and are anticipated to relieve future traffic congestion and improve level of services; therefore, increased PM₁₀ emissions are not anticipated. In addition, the project's build alternatives will not cause a substantial change to truck volumes that exceeds the regional growth rate nor serve interchanges with large truck volume or provide access to major industrial/truck traffic generators. Hence, this project will not substantially change diesel emissions. According to 40 CFR 93.123(b)(1)(i) and (ii), this project is not considered a Project of Air Quality Concern regarding PM₁₀. As such, it is not anticipated that this project will contribute to a PM₁₀ hot spot that will cause or contribute to violation of the PM₁₀ NAAQS.

USEPA had signed the final rule on February 23, 2006, establishes requirements for project-level conformity determinations in PM_{2.5} non-attainment and maintenance areas. This final rule is part of USEPA's implementation of the current PM_{2.5} standards. The proposed project is located in Sacramento County, and Sacramento County is designated as attainment/unclassified for PM_{2.5}. As such, PM_{2.5} conformity (including hot spot analysis) requirements do not apply.

2.12.2.3 Mobile Source Air Toxics

Mobile source air toxics (MSATs) are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxic also result from engine wear or from impurities in oil or gasoline. The six air toxics labeled by the USEPA as priority transportation MSATs are benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene. This project will not result in any meaningful changes in vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. As such, this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT. Moreover, USEPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. According to an FHWA analysis, even if vehicle miles traveled (VMT) increase by 64 percent, reductions of 57 percent to 87 percent in MSATs are projected from 2000 to 2020 (FHWA 2006).

2.12.2.4 Regional Air Quality Impacts

Transportation projects have the potential to affect air quality on a regional level. Ozone is the regional air quality pollutant most likely to be affected by transportation projects. Because ozone is formed over time by a chemical reaction involving precursor emissions such as oxides of nitrogen (NO_x), its concentration is distributed over a geographically regional area.

Before adopting the MTP and MTIP, SACOG performed a quantitative analysis to determine if implementation of the set of projects included in these documents would result in violations of the ozone air quality standard. Based on this analysis, SACOG has concluded that implementing the set of projects included in the MTP and MTIP would not result in a violation of the ozone standard.

The proposed project is a component of the set of projects included in the MTP and MTIP. Since this set of projects have been found to not result in a violation of the ozone air quality standard, the impact of the project on regional air quality is considered to be less than significant.

2.12.2.5 Conformity With the State Implementation Plan (SIP)

The Federal Clean Air Act requires that transportation plans, programs, and projects approved by a Metropolitan Planning Organization conform to the SIP. The Metropolitan Planning Organization for Sacramento County is SACOG. Demonstrating a project's conformity with the SIP involves inclusion of the project in the MTP and MTIP by SACOG. Demonstrating a project's conformity with the SIP also involves determining that the project would not result in a violation of the CO air quality standard.

The proposed project has been included in both the MTP and MTIP by SACOG. In addition, as described earlier in this chapter, the project would not result in a violation of the CO air quality standard. Therefore, the project is considered to be in conformance with the SIP.

2.12.2.6 Construction Impacts

The proposed project may result in the generation of short-term construction-related air emissions, including fugitive dust and exhaust emissions from construction equipment. Fugitive dust, sometimes referred to as windblown dust or PM₁₀, would be the primary short-term construction impact, which may be generated during excavation, grading, and hauling activities. However, both fugitive dust and

construction equipment exhaust emissions would be temporary and transitory in nature. In order to minimize the temporary construction-related emission impacts, the contractor will be required to use Best Management Practices and comply with Caltrans Standard Specifications. Section 7-1.01F, "Air Pollution Control" and Section 10, "Dust Control."

The contractor is also required to comply with all pertinent rules, regulations, ordinances, and statutes of the Sacramento Metropolitan Air Quality Management District (SMAQMD). On July 19, 2006, Caltrans consulted with SMAQMD regarding future construction emission rules. SMAQMD is proposing two tentative rules regarding construction emissions. Rule 1052, Construction Mitigation, is proposed for adoption in 2006. Rule 1025, Construction Equipment Fleet, is listed in case of adoption during 2006. Either of these rules will be included in the final environmental document (FED) if adopted prior to the release of the FED.

2.12.2.7 Other

Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) is known to exist in serpentine, a greenish greasy-looking rock, found within the ultramafic rock. Based on the California Geologic Survey and National Resource Conservation Service soils map, no ultramafic rocks are found in Sacramento County. If NOA is found during construction, rules and regulation of the Sacramento Metropolitan Air Quality Management District regarding NOA must be adhered to when handling this material.

2.12.3 Avoidance, Minimization and/or Mitigation Measures

In order to minimize the temporary construction-related emission impacts, the contractor will be required to use Best Management Practices and comply with Caltrans Standard Specifications, Section 7-1.01F, "Air Pollution Control" and Section 10, "Dust Control." The contractor is also required to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

Table 2.12-1: Ambient Air Quality Standards.

Pollutant	Averaging Time	California Standards ¹		Federal Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³) ⁸	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)*		0.08 ppm (157 µg/m ³) ⁸		
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		50 µg/m ³		
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard		65 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—		
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m ³)		—		
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	
	1 Hour	0.25 ppm (655 µg/m ³)		—	—	—
Lead ⁹	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m ³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ⁹	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			
*This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.						

*This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.

California Air Resources Board (5/6/05)

Note for Table 2.12-1:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact US EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by US EPA on July 18, 1997. Contact US EPA for further clarification and current federal policies.
9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Table 2.12-2: Highest 1-Hour and 8-Hour Carbon Monoxide Value for the Years 2010, 2020, and 2030 (in parts per million)

Alternative	2010	2020	2030
No-Build			
1-Hour	8.3	6.8	6.3
8-Hour	5.8	4.8	4.4
Alt. 10D-1			
1-Hour	8.5	6.7	6.3
8-Hour	6.0	4.7	4.4

2.13 NOISE

This noise analysis evaluates the effects of the proposed project on the noise environment and discusses noise abatement measures for affected areas. In August 2006, Illingworth & Rodkin, Inc., prepared a noise impact study report for this project. A copy of the report is available from Caltrans.

2.13.1 Regulatory Setting

NEPA and CEQA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. For highway transportation projects with FHWA involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2.13-1 at the end of this section lists the NAC.

In accordance with Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, October 1998*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This section discusses noise abatement measures that would likely be incorporated in the project.

Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Other factors used in determining whether a proposed noise abatement measure is reasonable include: residents acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

2.13.2 Affected Environment

The existing noise environment throughout the project corridor varies by location, depending on site characteristics such as proximity to US 50 and other noise sources, the relative highway and local elevations and terrain, and any intervening structures or barriers. There is a mix of single-family and multi-family residential, commercial, and industrial land-uses throughout the project area. Category B land uses, in the form of single-family and multi-family residential land uses, open space such as parks, public areas such as churches, and hotels and motels, border a large percentage of the project alignment.

2.13.2.1 Identification of Potentially Impacted Areas

Areas of potential noise impacts extend along US 50 to the north and south of the roadway throughout the majority of the project area. Regions within the study area where the proposed project could cause substantial noise increases, or cause noise levels to approach or exceed the NAC under Year 2030 Build conditions, have been identified. Table 2.13-2 below identifies the applicable receiver category

associated with each of the noise measurement locations. Noise measurement site locations are shown on Figures 2.1-1a to 1p.

2.13.2.2 Existing Barriers

Twenty-seven (27) existing noise barriers were identified in the study area. Table 2.13-3 provides a name identifier for each barrier, and lists the location, construction material, height, and current condition. The location of each barrier is identified on Figures 2.1-1a to 1p.

Fifteen of the 27 existing barriers are constructed of masonry block, all of which appear to be in good condition. With the exception of the barrier currently being built to shield the new townhomes to the southeast of the US 50/Mather Field Road interchange, all masonry barriers are in the range of 10 to 14 ft high.

Pre-cast concrete barriers (3) range in condition from good to fair. Barrier F, which is in fair condition, is separated from its structural posts in some locations. Pre-cast concrete barriers range in height from 8 to 12 ft.

Sheet-metal barriers are mostly composed of sheet-metal, similar to roofing material, and range in height from 6 to 8 ft. Sheet-metal barriers I, O-2 and T are in fair condition; they appear to be intact with no sections missing and areas that have been damaged have been repaired. While sheet metal barriers O-1, O-3, O-4 and P are in poor condition with some sections damaged and numerous sections have either fallen down or are in a state of disrepair. These barriers typically have sections of solid plywood and wood picket fencing with gaps, which are generally in fair to poor condition.

Barrier J consists of concrete sprayed onto chain-link fence to form a wall. The wall is in generally good condition, but it is cracked in some locations and possibly beginning to separate from the fence.

2.13.2.3 Receivers and Noise Measurement Sites

There were 103 short-term measurements and 13 long-term measurements taken along the project alignment to document the baseline noise environment. The measurement locations were chosen to accurately represent areas of Category B land uses that would potentially benefit from lower future noise levels. The sites were also selected to minimize interference from outside noise sources. Figures 2.1-1a to 1p show the locations of the field noise measurements and the modeled receivers.

2.13.2.4 Existing Noise Levels at Receivers

The short-term and long-term measurement results, as well as charts showing the trends in hourly noise levels measured at the thirteen (13) long-term measurement sites, are included in Appendix B and Appendix C of the noise study. The estimated loudest-hour noise levels were based on daytime measurement data, peak-hour traffic data, and trends in hourly noise levels measured at representative 24-hour measurement locations. Existing (2004) and predicted (2030) noise levels are summarized in Table 2.13-4.

2.13.3 Environmental Consequences

2.13.3.1 Methodology

The FHWA Traffic Noise Model, TNM 2.5, was the traffic noise model used in the noise impact analysis for this project.

2.13.3.2 Pavement

Preliminary documentation of existing pavement types through the study area found that the pavement along US 50 was primarily fair to poor condition Portland Cement Concrete (PCC), with sections of Open Grade Asphalt-Concrete (OGAC) along eastbound US 50 east of Mayhew Road and in the

vicinity of the Oak Park Interchange. Poor condition PCC pavement is one of the loudest pavement surfaces that have been measured. As part of the project, US 50 would be repaved with OGAC throughout the length of the study area.

Recent studies by Caltrans and others indicate that OGAC can reduce traffic noise by 4 to 6 dB (Illingworth & Rodkin 2005). FHWA does not officially accept the noise reduction aspects of OGAC as a noise abatement measure (i.e. utilization of OGAC in lieu of noise barriers). However, pavement type may be taken into consideration for modeling and prediction purposes. As the longevity of the noise reduction benefits is still uncertain and as a conservative practice, the use of OGAC is not taken into consideration. Noise impacts are generally overstated in locations where OGAC would replace the existing PCC pavement. In these cases, the future traffic noise levels would be anticipated to be 4 to 6 dB lower than the modeled results detailed below.

2.13.3.3 Noise Level Predictions

Noise levels were predicted within the nine receiver areas listed in Table 2.13-2. Each area is discussed below in detail. Table 2.13-4 summarizes the traffic noise modeling results for each receiver segment. There are no NAC Category C land uses in the project area that are considered to have outdoor activity areas with frequent human usage that would benefit from a lower noise level. Consequently, a detailed assessment of traffic noise impacts and abatement was not considered at Category C land uses in the project area. Traffic noise analysis was conducted for Year 2004, Year 2030 No Build, and Year 2030 Build conditions.

Segment 1: 28th Street to Alhambra Boulevard

Four short-term and 1 additional modeled receiver measurements were made within this section. There are no existing noise barriers within this segment. The loudest-hour $L_{eq(h)}$ for the Year 2004 condition ranges from 68 to 71 dBA at first-tier residences and 68 dBA at second-tier residences. Under Year 2030 No Build conditions, noise levels at receiver locations are expected to range from 68 to 71 dBA at first-tier residences and from 67 to 68 dBA at second-tier residences.

The Year 2030 Build condition is anticipated to increase the loudest-hour $L_{eq(h)}$ noise levels in this segment by 0 to 1 decibels, resulting in noise levels of 69 to 71 dBA at first-tier residences and 68 dBA at second-tier residences. This increase in noise levels is a result of an increase in traffic volumes. The noise level increase is not enough to be considered a substantial increase. However, most first- and second-tier residences are predicted to experience noise levels that approach or exceed the NAC. Noise abatement in the form of sound barriers on structure is being considered throughout this area.

Segment 2: Alhambra Boulevard to 65th Street

Four long-term measurements and 21 short-term measurements were taken within this segment, and there were 33 additional modeled receiver locations. There are currently six sound walls within this section of roadway (Barriers H, I, J, Q-1, Q-2, and Q-3). In unshielded locations, Year 2004 loudest-hour $L_{eq(h)}$ noise levels ranged from 62 to 74 dBA at first-tier residences and from 61 to 68 dBA at second-tier residences. Loudest-hour noise levels ranged from 57 to 65 at first- and second-tier residences under Year 2004 conditions in areas that were shielded from roadway noise by Barrier H, and from 58 to 63 dBA at receivers located behind Barriers Q-1, Q-2, and Q-3. At receivers located behind Barrier I, Year 2004 loudest-hour $L_{eq(h)}$ noise levels ranged from 65 to 70 dBA at first- and second-tier residences. Year 2004 loudest-hour $L_{eq(h)}$ noise levels ranged from 62 to 68 dBA at first- and second-tier residences with the shielding provided by Barrier J.

Under Year 2030 No Build condition, noise levels will increase at modeled locations by 0 to 1 decibels. The resulting loudest-hour $L_{eq(h)}$ noise levels would range from 61 to 74 dBA at first- and second-tier residences in unshielded areas, 57 to 65 dBA with the shielding provided by Barrier H, 58 to 64 dBA with the shielding provided by Barriers Q-1, Q-2, and Q-3, 65 to 70 dBA with the shielding provided by Barrier I, and 62 to 68 dBA with the shielding provided by Barrier J.

The Year 2030 Build condition loudest-hour $L_{eq(h)}$ noise levels range from 61 to 74 dBA at first- and second-tier residences in unshielded areas, 58 to 65 dBA with the shielding provided by Barrier H, 59 to 64 dBA with the shielding provided by Barriers Q-1, Q-2, and Q-3, 65 to 71 dBA with the shielding provided by Barrier I, and 62 to 69 dBA with the shielding provided by Barrier J. The noise level increase anticipated under the Year 2030 Build condition is not enough to be considered a substantial increase. However, predicted noise levels approach or exceed the NAC in most first- and second-tier residences that are located in unshielded areas and at first-tier residences located behind Barriers I and J, which are in fair condition. Therefore, noise abatement in the form of replacing Barriers I and J is being considered.

Segment 3: 65th Street to Howe Avenue

One long-term measurement and one short-term measurement were taken within this region, and there were two additional modeled receiver locations. There are no sound walls within this segment. The loudest-hour $L_{eq(h)}$ noise levels under Year 2004 conditions range from 55 to 71 dBA. Under Year 2030 No Build conditions, noise levels at modeled locations are expected to decrease between 0 and 1 decibels to range from 55 to 70 dBA.

The Year 2030 Build condition will increase the noise levels at modeled locations by 0 to 1 decibels to range from 55 to 71 dBA. This increase in noise levels is a result of the increase in traffic volumes. The noise level increase is not enough to be considered a substantial increase. Calvary Church does not include outdoor activity areas that experience frequent human use and would not be considered impacted. The predicted noise levels at the CSUS baseball field would approach or exceed the federal NAC of 67 dBA, but are not considered to be areas of frequent human use that would benefit from noise abatement. Therefore, no noise abatement is being considered for this area.

Segment 4: Howe Avenue to Watt Avenue

Two long-term measurements and 15 short-term measurements were taken within this segment, along with 21 additional modeled receiver locations. All measured and modeled receivers in this segment were shielded by existing sound walls (Barriers G-1, G-2, K, L-1, and L-2). The loudest-hour $L_{eq(h)}$ for the Year 2004 conditions ranges from 62 to 72 dBA at first-tier residences and from 59 to 66 dBA at second-tier residences. Under Year 2030 No Build conditions, noise levels at modeled locations are expected to increase by less than 1 decibel to range from 62 to 72 dBA at first-tier residences and from 59 to 66 dBA at second-tier residences.

The Year 2030 Build condition will increase noise levels at modeled locations by 0 to 1 decibels. Resulting noise levels are anticipated to be 63 to 72 dBA at first-tier residences and 60 to 66 dBA at second-tier residences. This increase in noise levels is a result of the increase in traffic volumes. The noise level increase would not be considered a substantial increase. However, many first-row receivers would continue to approach or exceed the NAC of 67 dBA; therefore, noise abatement, in the form of increasing the existing wall heights in the area, is being considered for this segment.

Segment 5: Watt Avenue to Mayhew Road

Fifteen short-term measurements were taken within this region, and there were 13 additional modeled receiver locations. Four existing noise barriers are located within this region (Barriers E, F, M, and N). The loudest-hour $L_{eq(h)}$ for the Year 2004 condition ranges from 66 to 74 dBA at first-tier receivers behind existing sound barriers, 63 to 68 dBA at second-tier receivers located behind sound walls, and from 67 to 76 dBA at unshielded first- and second-tier receivers, which are located adjacent to the Folsom Boulevard overpass. Under Year 2030 No Build conditions, noise levels at modeled locations are expected to increase from 0 to 1 decibels, resulting in noise levels from 63 to 74 dBA in areas shielded by existing barriers and from 67 to 76 dBA in unshielded areas.

The Year 2030 Build condition is anticipated to increase noise levels by 0 to 1 decibels to range from 67 to 75 dBA at first-tier receivers behind existing barriers, 63 to 68 dBA at second-tier receivers in

shielded locations, and 67 to 77 dBA at unshielded first- and second-tier receivers. This increase in noise levels is a result of the increase in traffic volumes. The noise level increase is not enough to be considered a substantial increase. However, the predicted loudest-hour $L_{eq(h)}$ noise levels at shielded first-tier receivers and unshielded first- and second-tier receivers would continue to approach or exceed the NAC of 67 dBA. Noise abatement is being considered for this area in the form of new sound walls and the replacement of portions of the existing noise barriers in the segment.

Segment 6: Mayhew Road to Bradshaw Road

One short-term measurement was taken within this segment and there was 1 additional modeled receiver location. There are no existing sound walls within this area. The loudest-hour $L_{eq(h)}$ under Year 2004 conditions is 72 dBA in the open space area and 67 dBA in front of Capital Christian Center. Under Year 2030 No Build conditions, noise levels are expected to increase between 0 and 1 decibel to be 72 dBA in the open space area and 67 dBA in front of Capital Christian Center.

The Year 2030 Build condition is anticipated to increase the loudest-hour $L_{eq(h)}$ noise levels by 1 decibel, resulting in noise levels of 73 dBA in the open space area and 67 dBA in front of Capital Christian Center. This increase in noise levels is a result of the increase in traffic volumes. The noise level increase is not enough to be considered a substantial increase. The outdoor use areas associated with Capital Christian Center are located behind the structure and are not anticipated to approach or exceed the federal NAC of 67 dBA. The open space region is not an area of frequent human use that would benefit from noise abatement. Therefore, no noise abatement is being considered for this segment.

Segment 7: Bradshaw Road to Mather Field Road

Thirteen short-term measurements were taken within this region, and there were 16 additional modeled receiver locations. Although there are four existing noise barriers within this region (Barriers O-1, O-2, O-3, and O-4), the barriers are damaged and have fallen down in sections. The loudest-hour $L_{eq(h)}$ noise levels range from 71 to 77 dBA in unshielded areas north of the highway and from 62 to 82 dBA at receiver locations south of the highway, depending on the condition of the adjacent barrier segment. Under Year 2030 No Build conditions, noise levels are calculated to increase between 0 and 1 decibel to range from 71 to 77 dBA in unshielded areas north of the highway and from 62 to 82 dBA at receiver locations south of the highway.

The Year 2030 Build condition will increase the noise levels at modeled locations by 0 to 2 decibels to range from 72 to 78 dBA in unshielded areas north of the highway and from 63 to 83 dBA at receiver locations south of the highway. This increase in noise levels is a result of the increase in traffic volumes and the shifting of traffic slightly closer to the receiver locations. The noise level increase is not enough to be considered a substantial increase. However, the predicted noise levels at most locations located in unshielded areas and behind existing Barriers O-1, O-2, O-3, and O-4 approach or exceed the federal NAC of 67 dBA. Noise abatement is being considered for this area in the form of new barriers to the north of the highway and the replacement of existing Barriers O-1, O-2, O-3, and O-4.

Segment 8: Mather Field Road to Zinfandel Drive

Two long-term measurements and 14 short-term measurements were made within this region, and there were 33 additional modeled receiver locations. There are six existing sound walls within this region (Barriers C, D, P, R, S, and T). Under Year 2004 conditions, the loudest-hour $L_{eq(h)}$ noise levels were calculated to be 62 to 67 dBA at first- and second-tier residences shielded by Barrier C; 59 to 68 at first- and second-tier residences in areas behind Barrier D; 64 to 70 dBA at first- and second-tier residences located behind Barrier P; 65 to 69 dBA at residences (under construction) behind Barrier R; about 68 dBA behind Barrier S; and 62 to 72 dBA at first- and second-tier residences behind Barrier T. Loudest-hour $L_{eq(h)}$ noise levels in unshielded areas ranged from 63 to 77 dBA.

Under Year 2030 No Build conditions, noise levels are anticipated to increase by 0 and 1 decibel to range from 60 to 72 dBA in areas located behind existing barriers and from 63 to 77 dBA in unshielded areas. The Year 2030 Build condition is calculated to increase the loudest-hour $L_{eq(h)}$ noise levels by 1 to 2 decibels. The resulting loudest-hour $L_{eq(h)}$ noise levels would be 63 to 68 dBA at first- and second-tier residences shielded by Barrier C, 60 to 69 dBA at first- and second-tier residences behind Barrier D, and 63 to 73 dBA at first- and second-tier residences behind Barrier T. At receivers located behind Barrier S, Year 2030 Build loudest-hour $L_{eq(h)}$ noise levels would be about 69 dBA. Year 2030 Build loudest-hour $L_{eq(h)}$ noise levels range from 65 to 71 dBA at first- and second-tier residences with the shielding provided by Barrier P and from 66 to 70 dBA at residences (under construction) behind Barrier R. Year 2030 Build noise levels in unshielded areas range from 64 to 78 dBA. The increase in noise levels under the Year 2030 Build condition is a result of increased traffic volumes and the proposed widening and the shifting of traffic slightly closer to the receiver locations. The noise level increase is not enough to be considered a substantial increase. First-tier receivers in both unshielded areas and areas currently shielded by existing barriers would continue to approach or exceed the federal NAC of 67 dBA under the Year 2030 Build condition. Second-tier receivers in unshielded areas and some shielded locations would also approach or exceed the federal NAC. Noise abatement, in the form of new barriers and the replacement of some existing barriers, is being considered for this segment.

Segment 9: Zinfandel Drive to the Easternmost Project Limit (near Sunrise Boulevard)

Two long-term measurements and 13 short-term measurements were taken within this region, and there were 11 additional modeled receiver locations. There are two existing sound walls in this segment, Barriers A and B, which are located north of the highway east of Berrywood Drive. The loudest-hour $L_{eq(h)}$ under Year 2004 conditions range from 59 to 76 dBA at unshielded locations west of Folsom Boulevard, 63 to 69 dBA at unshielded first- and second-tier residences east of Folsom Boulevard, and 57 to 63 dBA at first- and second-tier residences behind the existing barriers. Under Year 2030 No Build conditions, noise levels are anticipated to increase between 0 and 1 decibel to range from 60 to 76 dBA at unshielded locations west of Folsom Boulevard, 63 to 69 dBA at unshielded first- and second-tier residences east of Folsom Boulevard, and 57 to 63 dBA at first- and second-tier residences behind the existing barriers.

The Year 2030 Build condition is anticipated to increase loudest-hour $L_{eq(h)}$ noise levels by 0 to 2 decibels. Resulting Year 2030 Build noise levels would be 60 to 76 dBA at unshielded locations west of Folsom Boulevard, 65 to 71 dBA at unshielded first- and second-tier residences east of Folsom Boulevard, and 58 to 64 dBA at first- and second-tier residences behind the existing barriers. This increase in noise levels is a result of the increase in traffic volumes and the shifting of traffic slightly closer to the receiver locations. The noise level increase is not enough to be considered a substantial increase. There are no impacted areas of frequent human use in the area between Zinfandel Drive and Folsom Boulevard that would benefit from noise abatement. Predicted noise levels in unshielded locations east of Folsom Boulevard would continue to approach or exceed the federal NAC of 67 dBA under Year 2030 Build conditions. Noise abatement in the form of sound walls is being considered for this segment.

2.13.3.4 Assessment of Noise Impacts and Abatement Options

Receivers that exceed either state or federal noise thresholds must be evaluated for potential abatement measures. Substantial noise increases would not occur at Category B uses in the study area, but many receivers along the project would experience future noise levels that would approach or exceed the NAC. As a result, noise abatement must be evaluated for these receivers. Potential noise abatement measures identified in the Protocol include:

- Avoiding the project impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing sound walls;

- Using traffic management measures to regulate types of vehicles and speeds;
- Acquiring property to serve as a buffer zone; and/or
- Acoustically insulating public use or nonprofit institutional structures.

The chosen abatement type for this project is the construction of sound walls. A preliminary noise abatement analysis was conducted that identified the feasibility of constructing or replacing sound walls to reduce traffic noise levels. According to Caltrans and FHWA policies, a sound wall must provide a minimum 5-dBA reduction in traffic noise to be considered feasible. Furthermore, under Caltrans policies, sound walls should interrupt the line of sight between a truck stack (of average height) and a receiver.

Traffic noise modeling and impact assessment was conducted only at NAC activity Category B land uses where frequent human usage occurs and a lowered noise level would be of benefit. The primary focus of this study is on NAC activity Category B land uses that are not protected by existing Caltrans sound walls. The existing Caltrans sound walls are typically constructed to meet the criteria in Chapter 1100 of the *Highway Design Manual*. The manual states that sound walls should not be higher than 14 ft above the pavement when located within 15 feet of the edge of traveled way and 16 feet above ground when located more than 15 feet from the edge of traveled way.

In many locations, receivers located behind existing barriers and sound walls exceeded the NAC. Replacement barriers were assessed for barriers that were in fair to poor condition. Noise barriers were evaluated at the most acoustically effective location within State right-of-way. Where US 50 is elevated above receivers, the most acoustically effective location for a barrier is near the edge of shoulder, either on structure or at the top of slope.

Barriers O-1, O-2, O-3, O-4, P, S, and T are in structurally poor condition, with segments that are missing or falling down. Due to the acoustical transparency of portions of these walls, replacement walls of equal height to the existing walls would be anticipated to provide additional attenuation to receivers. To predict the insertion loss provided by a replacement wall, future noise levels were predicted assuming an existing barrier height of 0 ft (i.e., the barrier was removed from the model). Traffic noise model (TNM) adjustment factors, which were included to show the reduced noise benefit received from the existing walls, were altered or removed to predict unshielded noise levels. The insertion loss of the new potential barrier was calculated in comparison to the modeled condition with an existing barrier height of 0 feet.

For sound walls that are less than the maximum height allowed, raising the sound wall height to the maximum height would not provide at least 5 dBA of noise reduction (a sound wall must achieve at least 5 dBA of reduction to be considered feasible). Because of this, a detailed assessment of impacts and abatement at NAC activity Category B land uses currently protected by Caltrans sound walls was not conducted. An exception was made at locations where the existing sound walls were low, and residents in the area potentially had a direct line of sight to traffic on US 50 (Barriers F, I, J, K, and N). Because the existing walls are structurally in fair or good condition, a replacement wall of equal height to the existing wall would not be anticipated to change the noise environment behind the wall. Therefore, the insertion loss for these sound walls was calculated based on wall height increases over the existing wall height.

All existing masonry barriers are in good condition and (with the exception of the barrier under construction to shield new townhomes to the southeast of Mather Field Road) range in height from 10 to 14 ft. Although receivers behind some of these walls (Barriers C, D, E, G-1, G-1, L-1, L-2, M, and R) approach or exceed the NAC, increasing the heights of these barriers could not achieve the minimum 5-decibel reduction below existing levels. Therefore, replacement of existing masonry barriers would not be considered feasible and these walls are not assessed further in this document.

Once a noise barrier achieved the minimum of a 5-decibel reduction at a given receiver, the reasonableness allowance was determined. To determine whether a proposed noise barrier is feasible, the barrier must provide a minimum of a 5-decibel reduction, as well as meet various other practical requirements, such as non-obstruction of driveways/roadways. Barriers should also break line of sight between a 3.5 m (11.5 ft) -high truck stack and a 1.5 m (5 ft) -high receiver. To determine whether a proposed barrier is reasonable, the total reasonable allowance for that barrier must be greater or equal to the cost of the barrier. To calculate the reasonable allowance, a set of two worksheets are completed (Worksheets "A" and "B" in the Protocol). These worksheets calculate a reasonable allowance for each benefited receptor. A benefited receptor is any receptor receiving a minimum of a 5-decibel reduction in noise levels from the proposed barrier.

The reasonable allowance is calculated using the following five reasonableness factors, and adding each allotted amount to the base amount (\$32,000 as of April 2006), which is adjusted each year:

Absolute Noise Levels. These are predicted future noise levels with the project at each receptor. If the absolute noise levels are:

69 dBA or less	add	\$2,000
70-74 dBA	add	\$4,000
75-78 dBA	add	\$6,000
More than 78 dBA	add	\$8,000

"Build" Versus Existing Noise Levels. This is the increase in noise levels of the future predicted over existing noise levels at each receptor. If the increase is:

Less than 3 dBA	add	\$0
3-7 dBA	add	\$2,000
8-11 dBA	add	\$4,000
12 dBA or more	add	\$6,000

Achievable Noise Reduction. This is the noise reduction provided by the proposed noise abatement at each receptor. If the noise reduction is:

Less than 6 dBA	add	\$0
6-8 dBA	add	\$2,000
9-11 dBA	add	\$4,000
12 dBA or more	add	\$6,000

New Construction or Predate 1978. If the project is a new highway construction, or if the majority of benefited receptors (more than 50 percent) were in existence prior to January 1, 1978 for a highway reconstruction, add \$10,000 to the base allowance.

Table J-1 in Appendix J of this document depicts the reasonable allowance for each benefited area.

Potential sound walls are discussed below in detail by study area segment. Figures 2.1-1a to 1p show the location and height of potential sound walls. Eleven potential sound walls qualify under the feasible/reasonable criteria (Table 2.13-5). The final decision to include sound walls in the proposed project design must consider reasonableness factors, such as cost effectiveness, as well as other feasibility considerations including topography, access requirements, other noise sources, safety, and information developed during the design and public review process.

If pertinent parameters change substantially during the final project design, the preliminary noise abatement/mitigation design may be changed or eliminated from the final project design. A final decision of the construction of the noise abatement/mitigation will be made upon completion of the project design.

Potential sound walls that did not meet the feasible and reasonable criteria (either new or replacement walls) could be considered as a community enhancement. Nine potential sound walls were identified as potential community enhancement candidates (Table 2.13-5). The decision to include a sound wall as a community enhancement must be made by the jurisdiction (the City of Sacramento, City of Rancho Cordova, or Sacramento County).

Segment 1: 26th Street to Alhambra Boulevard (Alternative 10D-1)

There are currently no barriers in this segment. The predicted Year 2030 Build loudest-hour noise levels within this segment range from 68 to 71 dBA. There are two proposed barriers throughout this segment to reduce these potential impacts, WB1-D and EB1-D.

WB1-D would reduce noise levels by 5 to 10 decibels. A minimum barrier height of 8 ft would break the line of sight between an 11.5 ft -high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$3,270,000 to \$7,088,000, depending upon the barrier height. The construction cost for a sound wall is over the reasonable allowance and is not recommended at this location.

EB1-D would reduce noise levels by 5 to 10 decibels. A minimum barrier height of 8 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$1,492,000 to \$5,394,000, depending upon the barrier height. The construction cost for a sound wall is over the reasonable allowance and is not recommended at this location.

Segment 2: Alhambra Boulevard to 65th Street (Alternative 10D-1)

There are seven existing barriers in this segment: Barriers H, I, Q-1, Q-2, Q-3, Q-4, and J. Barriers I and J are in fair condition but may not break the line of sight between receivers, and traffic on US 50. Barriers H, Q-1, Q-2, Q-3, and Q-4 are in good condition. Barriers I and J were studied further to determine whether increasing the height of these barriers would provide an additional 5-decibel reduction.

The predicted Year 2030 Build loudest-hour noise levels within this segment range from 58 to 74 dBA, with 27 Category B receivers approaching or exceeding the NAC of 67 dBA $L_{eq(h)}$. There were seven barriers studied throughout this segment to reduce these potential impacts: WB2, EB2, EB3, EB4, EB5, EB6, and EB7. Calculations based on preliminary design data indicate that the proposed barriers would reduce noise levels by 1 to 12 decibels at affected receivers.

WB2 would reduce noise levels by 5 to 9 decibels for up to 19 sensitive receptors. A minimum barrier height of 10 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$308,000 to \$912,000, depending upon the barrier height. The cost of constructing a 10-foot sound wall is within the reasonable allowance and is recommended at this location.

EB2-2A would reduce noise levels by 5 to 10 decibels for 58 sensitive receptors. A minimum barrier height of 8 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$1,658,000 to \$2,824,000, depending upon the barrier height. The construction cost for a sound wall is over the reasonable allowance and is not recommended at this location.

EB3 (Existing Barrier I): Raising the existing sound wall height to 16 ft would not provide the required 5-dBA reduction; therefore, this barrier is not considered to be feasible and no abatement measures are recommended.

EB4 would reduce noise levels by 5 to 7 decibels for 7 sensitive receptors. A minimum barrier height of 6 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$92,000 to \$316,000, depending upon the barrier height. This sound wall exceeded the reasonable allowance and is not recommended.

EB5 will reduce noise levels by 6 to 12 decibels for 7 sensitive receptors. A minimum barrier height of 6 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$334,000 to \$356,000, depending upon the barrier height. The cost of constructing this sound wall exceeded the reasonable allowance and is not recommended.

EB6 would reduce noise levels by 5 to 9 decibels for 26 sensitive receptors. A minimum barrier height of 6 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$414,000 to \$1,224,000, depending upon the barrier height. The cost of constructing this sound wall exceeded the reasonable allowance and is not recommended.

EB7 is comprised of two parts, the new barrier construction and the barrier height extension for existing Barrier J. A minimum barrier height of 6 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The new barrier construction would reduce noise levels by 5 to 7 decibels for 4 sensitive receptors, and the reasonable allowance calculated in accordance with the Protocol ranges from \$184,000 to \$192,000, depending upon the barrier height. A 10-foot sound wall is recommended at this location. For Barrier J height extension, raising the existing sound wall height to 16 ft would not provide the required 5-dBA reduction; therefore, this portion of the barrier is not considered to be feasible.

Segment 3: 65th Street to Howe Avenue (Alternative 10D-1)

There are no Category B receivers in this segment that approach or exceed the NAC of 67 dBA. Therefore, no barriers are proposed for this segment.

Segment 4: Howe Avenue to Watt Avenue (Alternative 10D-1)

There are 3 existing barriers in this segment: Barriers G, K, and L. Barrier K is in fair condition but may not break the line of sight between receivers and traffic on US 50, and Barriers G and L are considered to be in good condition. Barrier K was studied further to determine whether increasing the height of the existing barrier would provide an additional 5-decibel reduction.

The predicted Year 2030 Build loudest-hour noise levels within this segment range from 60 to 72 dBA, with 24 Category B receivers approaching or exceeding the NAC of 67 dBA. The only proposed barrier in this segment is Barrier EB8, which is the height extension for Barrier K. Raising the existing sound wall height to 16 ft would not provide the required 5-dBA reduction; therefore, this barrier is not considered to be feasible and no abatement measures are recommended.

Segment 5: Watt Avenue to Mayhew Road (Both Build Alternatives)

There are 5 existing barriers in this segment (Barrier E, F, F-2, M, and N); Barrier F is a masonry wall in good condition, Barrier F-2 is a pre-cast barrier in poor condition, Barrier N is in fair condition but may not break the line of sight between receivers and traffic on US 50, and Barriers E and M are in good condition. The predicted Year 2030 Build loudest-hour noise levels within this segment range from 62 to 78 dBA, with 23 Category B receivers approaching or exceeding the NAC of 67 dBA. There were 4

barriers studied throughout this segment to reduce these potential impacts, WB3, WB4, EB9, and EB10, including a replacement wall (WB3) for Barrier F-2, and an analysis of the noise reduction provided by increasing the height of Barrier N (EB10). Calculations based on preliminary design data indicate that the proposed barriers would reduce noise levels by 1 to 10 decibels for all receivers.

WB3 would reduce noise levels by 5 decibels for 8 sensitive receptors. The reasonable allowance calculated in accordance with the Protocol is \$400,000 for a 16 ft-high wall. The construction cost for a sound wall is over the reasonable allowance and is not recommended at this location.

WB4 would reduce noise levels by 5 to 10 decibels for up to 68 sensitive receptors. A minimum barrier height of 10 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$2,416,000 to \$3,140,000, depending upon the barrier height. The cost of constructing a 10-foot sound wall is within the reasonable allowance and is recommended at this location.

EB9 would reduce noise levels by 5 to 8 decibels for up to 32 sensitive receptors. A minimum barrier height of 8 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$368,000 to \$1,536,000, depending upon the barrier height. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

EB10 would reduce noise levels by 6 decibels for up to 8 sensitive receptors. The reasonable allowance calculated in accordance with the Protocol is \$400,000 for a 16 ft-high wall. The construction cost for a sound wall is over the reasonable allowance and is not recommended at this location.

Segment 6: Mayhew Road to Bradshaw Road (Both Build Alternatives)

There are no sensitive receptors that will approach or exceed the NAC of 67 dBA, therefore no abatement measures were considered.

Segment 7: Bradshaw Road to Mather Field Road (Both Build Alternatives)

There is 1 existing barrier in this segment, Barrier O, which is in fair to poor condition. Barrier O was divided into four segments: O-1, O-2, O-3, and O-4. Segments o_1, O-3, and O-4 are in poor condition with segments either missing or replaced with wooden fences. Segment o_2 is in fair condition with segments that have been damaged replaced in kind, and with weak steel posts replaced with new steel posts. The predicted Year 2030 Build loudest-hour noise levels within this segment range from 63 to 83 dBA, with 25 Category B receivers approaching or exceeding the NAC of 67 dBA. There were 4 barriers studied throughout this segment to reduce these potential impacts: WB5, WB6, EB11, and EB11B, including the replacement wall for Barrier O (EB11 and EB11B). Calculations based on preliminary design data indicate that the proposed barriers will reduce noise levels by 1 to 16 decibels for all receivers.

WB5 would reduce noise levels by 5 to 11 decibels for 34 sensitive receptors. A minimum barrier height of 10 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$882,000 to \$1,736,000. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

WB6 would reduce noise levels by 5 to 11 decibels for 19 sensitive receptors. A minimum barrier height of 10 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$2,416,000 to \$3,140,000, depending upon the barrier height. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

EB11A would reduce noise levels by 5 to 16 decibels for 111 sensitive receptors. A minimum barrier height of 10 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$1,380,000 to \$5,752,000, depending on the barrier height. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

EB11B would reduce noise levels by 5 to 16 decibels for 42 sensitive receptors. A minimum barrier height of 10 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$824,000 to \$2,158,000, depending upon the barrier height. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

Segment 8: Mather Field Road to Zinfandel Drive (Both Build Alternatives)

There are 4 existing barriers in this segment: Barriers C, D, P, and S. Barriers P and S are in fair to poor condition and Barriers C and D are in good condition. The predicted Year 2030 Build loudest-hour noise levels within this segment range from 60 to 78 dBA, with 33 Category B receivers approaching or exceeding the NAC of 67 dBA. There were 3 barriers studied throughout this segment to reduce these potential impacts: WB7, WB8, and EB12 (which would replace Barriers P and S). Calculations based on preliminary design data indicate that the proposed barriers will reduce noise levels by 1 to 14 decibels for all receivers.

WB7 would reduce noise levels by 5 to 14 decibels for 26 sensitive receptors. A minimum barrier height of 12 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$1,414,000 to \$1,488,000. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

WB8 would reduce noise levels by 5 to 14 decibels for 53 sensitive receptors. A minimum barrier height of 10 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$1,684,000 to \$2,640,000, depending upon the barrier height. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

EB12 would reduce noise levels by 5 to 10 decibels for 38 sensitive receptors. A minimum barrier height of 12 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$500,000 to \$952,000, depending upon the barrier height. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

Segment 9: Zinfandel Drive to Easternmost Project Limit (Both Build Alternatives)

There are currently two barriers in this segment: Barrier A and Barrier B, both of which are in good condition. The predicted Year 2030 Build loudest-hour noise levels within this segment range from 58 to 76 dBA, with 7 Category B receivers approaching or exceeding the NAC of 67 dBA. There is one proposed barrier, WB9.

WB9 would reduce noise levels by 5 to 10 decibels for 40 sensitive receptors. A minimum barrier height of 8 ft would break the line of sight between an 11.5 ft-high truck stack and a 5 ft-high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from \$352,000 to \$1,928,000. The cost of constructing a 14-foot sound wall is within the reasonable allowance and is recommended at this location.

Based on the studies so far, Caltrans intends to incorporate noise abatement measures in the form of barriers (sound walls) at the following 11 locations: WB2 (Alternative 10D-1 only), WB4, WB5, WB6,

WB7, WB8, WB9, EB9, EB11A, EG11B, and EB12 (see Table 2.13-5 and Figures 2.1-1a to 1p for proposed sound wall details). Calculations based on preliminary design data indicate that the barrier(s) will reduce noise levels by 5 to 15 dBA for a total of 502 residences at a total cost of: \$14,666,000. If during final design conditions have substantially changed, noise barriers might not be provided. The final decision of the noise barriers will be made upon completion of the project design and the public involvement processes. Table I22 in Appendix I of this report details the reasonable allowance for all analyzed noise barriers.

No-Build Alternative

Noise levels for the No-Build Alternative were estimated to be the same as the measurements for existing (2004) noise. For the Year 2030 No Build conditions, noise increases of up to 1 dBA were predicted above Year 2004 levels. Noise level increases would not be considered substantial. However, due to existing conditions, noise levels at many first- and second-tier Category B receivers would continue to approach or exceed the NAC of 67 dBA

2.13.3.5 CEQA Assessment

The Caltrans Noise Protocol states that a traffic noise impact may be considered significant under CEQA if the project is predicted to result in a substantial increase in traffic noise. As discussed above, a substantial noise increase is defined as an increase of 12 dBA from the existing conditions to design-year conditions. The results of the noise modeling assessment indicate that the project will result in increases of up to 2 dB throughout the study area. The traffic noise impacts of the proposed project are therefore considered less than significant under CEQA.

2.13.3.6 Construction Noise

Construction activities associated with this project could include roadway widening and the construction of sound walls. Highway construction activities do not typically stay in one location for long periods. Noise-sensitive receivers in a given location would not be exposed to noise generated by construction for extended periods. Table 2.13-6 summarizes typical noise levels generated by construction equipment at a distance of 50 feet. Noise generated by construction equipment drops off at a rate of 6 dB per doubling of distance. With the implementation of Caltrans' standard construction practices, no adverse impacts from construction noise are anticipated.

Activity from construction would temporarily increase noise levels at locations immediately adjacent to the project where major construction occurs. The majority of construction would occur in the median throughout the project limits. It is anticipated at this time that Caltrans will perform much of the construction at night to avoid traffic congestion. Much of the construction noise would not be audible above traffic noise levels. Some construction activities, such as pile driving, have the potential to generate high noise levels. Pile driving is not likely to be used as a construction method for this project, but the construction of the retaining walls may include drilling. Noise generated by construction equipment drops off at a rate of 6 dBA per doubling of distance.

The existing noise levels in the project area are high and construction noise is temporary. Therefore, the construction noise would not substantially increase noise levels at nearby noise-sensitive receivers. With the implementation of Caltrans' standard construction practices, no adverse impacts from construction noise are anticipated.

Table 2.13-1. Noise Abatement Criteria (NAC)

Activity Category	NAC, Hourly A- Weighted Noise Level, dBA L _{eq} (h)	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands.
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Table 2.13-2: Summary of Noise Measurement IDs and Land Uses for Each Project Segment

Area	Alternatives Within Segment	Applicable Activity Category	Receiver ID
Segment 1 26 th Street to Alhambra Boulevard	Alt. 10D-1	B (residential)	Sites 7, 7b, 8, 8b
Segment 2 Alhambra Boulevard to 65 th Street	Alt. 10D-1	B (residential)	LT-5, LT-9, LT-10, LT-13 Sites 9, 10, 11, 12, 13, 13b, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 88
Segment 3 65 th Street to Howe Avenue	Alt. 10D-1	B (residential)	LT-6 and ST-28
Segment 4 Howe Avenue to Watt Avenue	Alt. 10D-1	B (residential)	LT-7, LT-8 Sites 29, 29b, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 43, 101
Segment 5 Watt Avenue to Mayhew Road	Both alternatives	B (residential)	Sites 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 89, 90, 91, 92
Segment 6 Mayhew Road to Bradshaw Road	Both alternatives	B (residential)	Site 55
Segment 7 Bradshaw Road to Mather Field Road	Both alternatives	B (residential)	Sites 56, 57, 58, 59, 60, 60b, 61, 62, 63, 64, 99, 100, 102
Segment 8 Mather Field Road to Zinfandel Drive	Both alternatives	B (residential)	LT-2, LT-3 Sites 65, 93, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77
Segment 9 Zinfandel Drive to Sunrise	Both alternatives	B (residential)	LT-1, LT-4 Site 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 96, 98

Table 2.13-3: Existing Barriers

Wall ID	Location	Construction Material	Height, feet	Condition
A	East of Sunrise Blvd.	Masonry	10 ft	Good
B	Sunrise Blvd. to Berrywood Dr.	Masonry	10 to 14 ft	Good
C	Kachina Way to Mills Acres Cir.	Masonry	14 ft	Good
D	White Rock Park to Mather Field Rd.	Masonry	10 to 14 ft	Good
E	Payette Dr. to Manlove Rd.	Masonry	12 to 14 ft	Good
F	Manlove Rd. to Watt Ave.	Masonry	8 to 12 ft	Good
F-2	Manlove Rd. to Watt Ave.	Pre-cast concrete	8 to 12 ft	Fair
G -1	Watt Ave. to Occidental Dr.	Masonry	12 to 14 ft	Good
G -2	Occidental Dr. to Howe Ave.	Masonry	12 to 14 ft	Good
H	43rd St. to 37th St.	Masonry	10 ft	Good
I	39th St. to 43rd St.	Steel on 3 m high berm	5 to 6 ft	Fair
J	61st St. to 63rd St.	Concrete spray on chain-link fence, on 1 to 4 m berm	5 to 6 ft	Good
K	Howe Ave. to Marquette Dr.	Pre-cast concrete	8 ft	Good
L-1	Marquette Dr. to Occidental Dr.	Masonry	13 to 14 ft	Good
L-2	Occidental Dr. to Watt Ave.	Masonry	12 to 14 ft	Good
M	Manlove Rd. to Folsom Blvd.	Masonry	12 to 14 ft	Good
N	Heirloom Way to Zambra Way	Pre-cast concrete	8 ft	Good
O-1	Bradshaw Rd. to Mather Field Rd.	Sheet metal & wood fence	8 ft	Poor
O-2	Bradshaw Rd. to Mather Field Rd.	Sheet metal & wood fence	8 ft	Fair
O-3	Bradshaw Rd. to Mather Field Rd.	Sheet metal & wood fence	8 ft	Poor
O-4	Bradshaw Rd. to Mather Field Rd.	Sheet metal & wood fence	8 ft	Poor
P	Mather Field Rd. to Sanbury Cir.	Sheet metal & wood fence	6 ft	Poor
Q-1	46th St. to 47th St.	Masonry	10 ft	Good
Q-2	47th St. to 48th St.	Masonry	10 ft	Good
Q-3	48th St. to 51st St.	Masonry	12 ft	Good
R	Mather Field Rd. to Chettenham Dr.	Masonry	6 ft	Good
S	Sanbury Cir. To White Rock Rd.	Wood fence	6 ft	Fair
T	Zinfandel Dr. to Kachina Way	Sheet metal & wood fence	6 ft	Fair

Table 2.13-4. Existing (2004) and Predicted (2030) Noise Levels

Receiver	Location	Type of Development	Existing (2004) Loudest Hour Noise Level, dBA	Predicted (2030 Build) Loudest Hour Noise Level, dBA	Noise Increase	Impact Type ¹	Units Represented
Segment 1							
MR-1.8		First-Tier Residence	68	68	1	A/E	42
Site-7	Side yard of 2509 W Street	Second-Tier Residence	68	68	1	A/E	18
Site-7a	25th Street, 135 feet to edge of W Street	First-Tier Residence	69	69	1	A/E	19
Site-8	In front of 2320 X Street	First-Tier Residence	70	70	0	A/E	21
Site-8b	Front of 2414 X Street	First-Tier Residence	70	70	0	A/E	20
MR-1.9		First-Tier Residence	71	71	0	A/E	39
Segment 2							
MR-2.1		First-Tier Residence	70	70	0	A/E	11
Site-9	2232 32nd Street	First-Tier Residence	70	70	0	A/E	8
MR-2.2		Second-Tier Residence	61	61	0	None	5
MR-2.3		First-Tier Residence	72	72	0	A/E	12
MR-2.4		Second-Tier Residence	65	65	0	None	5
MR-2.5		Second-Tier Residence	63	63	0	None	6
MR-2.6		First-Tier Residence	68	68	0	A/E	6
MR-2.7		First-Tier Residence	68	69	1	A/E	7
MR-2.8		Second-Tier Residence	66	67	1	A/E	6
LT-9	In front of 3201 H Street	First-Tier Residence	68	69	1	A/E	6
MR-2.9		Second-Tier Residence	65	65	0	None	0
Site-10	3330 T Street at right-of-way fence	First-Tier Residence	72	72	1	A/E	6
Site-11	In front of 3305 T Street	Second-Tier Residence	68	69	0	A/E	5
Site-12	In backyard of 2016 35th Street	First-Tier Residence	68	68	0	A/E	5
MR-2.10		Second-Tier Residence	64	64	0	None	8
MR-2.11		First-Tier Residence	71	72	1	A/E	4
MR-2.12		First-Tier Residence	70	71	1	A/E	5
MR-2.13		First-Tier Residence	68	68	1	A/E	11
Site-13b	Front yard of 1731 37th Street	Second-Tier Residence	60	60	1	None	5
Site-13	1748 38th Street	First-Tier Residence	63	64	1	None	3
MR-2.14		Second-Tier Residence	57	58	1	None	5
MR-2.15		First-Tier Residence	62	63	1	None	4

Receiver	Location	Type of Development	Existing (2004) Loudest Hour Noise Level, dBA	Predicted (2030 Build) Loudest Hour Noise Level, dBA	Noise Increase	Impact Type ¹	Units Represented
MR-2.16		Second-Tier Residence	65	65	1	None	18
Site-14	In front of 1840 42nd Street	First-Tier Residence	70	71	1	A/E	5
MR-2.17		First-Tier Residence	72	72	1	A/E	5
MR-2.18		Second-Tier Residence	65	65	0	None	11
Site-16	Corner of 46th and S Street	First-Tier Residence	71	72	1	A/E	2
MR-2.19		First-Tier Residence	71	71	1	A/E	2
MR-2.20		First-Tier Residence	65	65	1	None	7
MR-2.21		Second-Tier Residence	60	61	1	None	7
MR-2.22		Cemetery	68	69	1	None	0 ²
MR-2.23		Cemetery	65	65	1	None	0 ²
Site-15	East Lawn Memorial	Cemetery	66	67	1	None	0 ²
MR-2.24		First-Tier Residence	63	64	1	None	6
MR-2.25		Second-Tier Residence	61	62	1	None	8
LT-13	1739 47th St.	First-Tier Residence	63	64	1	None	2
Site-17	Backyard of 1733 49th Street	First-Tier Residence	63	64	1	None	9
Site-18	Backyard of 1709 49th Street	Second-Tier Residence	58	59	1	None	6
MR-2.26		First-Tier Residence	72	72	0	A/E	3
Site-19	Side yard of 1841 49th Street	First-Tier Residence	74	74	0	A/E	4
MR-2.27		First-Tier Residence	62	63	1	None	10
MR-2.28		First-Tier Residence	63	64	1	None	6
Site-20	Backyard of 1841 52nd Street	First-Tier Residence	71	71	0	A/E	4
Site-21	1857 52nd Street	Second-Tier Residence	61	62	0	None	12
Site-22	Backyard of 5317 S Street	First-Tier Residence	69	70	0	A/E	9
MR-2.29		First-Tier Residence	66	67	1	A/E	5
Site-23	In front of Lighthouse Day Care	Childcare	73	73	1	A/E	1
MR-2.30		First-Tier Residence	68	68	1	A/E	8
MR-2.31		Second-Tier Residence	64	64	1	None	6
Site-24	On 60th and T Street	Church	69	70	1	A/E	4
MR-2.32		Second-Tier Residence	62	62	1	None	3
Site-25	In front of 6134 T Street	First-Tier Residence	68	69	1	A/E	10
Site-26	6015 1st Ave.	Second-Tier Residence	62	63	1	None	4
Site-27	Near side yard of 1931 63rd Street	First-Tier Residence	68	69	1	A/E	4

Receiver	Location	Type of Development	Existing (2004) Loudest Hour Noise Level, dBA	Predicted (2030 Build) Loudest Hour Noise Level, dBA	Noise Increase	Impact Type ¹	Units Represented
Site-27b	Backyard of 6321 2nd Ave.	First-Tier Residence	66	67	1	A/E	4
MR-2.33		Second-Tier Residence	65	66	1	A/E	6
Site-88	2722 Kroy Way	First-Tier Residence	62	63	1	None	4
Segment 3							
Site-28	Ball fields at Sacramento State	Baseball	71	71	0	None	0 ³
MR-3.1		Church	70	70	1	A/E	0 ⁴
MR-3.2		Motel	55	55	1	None	1
LT-6	Mcauliffe Baseball Field	Baseball	71	71	0	None	0 ³
Segment 4							
Site-29b	Woodlake Village	First-Tier Residence	65	65	1	None	34
Site-29a	Woodlake Village	First-Tier Residence	69	70	1	A/E	2
Site-30	7944 La Riviera Drive	First-Tier Residence	65	66	1	A/E	26
Site-31		First-Tier Residence	65	66	1	A/E	6
Site-32	Front yard of 76 Lido	Second-Tier Residence	62	62	1	None	6
MR-4.1		First-Tier Residence	67	68	1	A/E	10
MR-4.2		Second-Tier Residence	63	64	1	None	8
MR-4.3		First-Tier Residence	69	69	1	A/E	10
MR-4.4		Second-Tier Residence	62	63	1	None	12
Site-34	Backyard of 2528 Belhaven	First-Tier Residence	69	70	1	A/E	10
Site-35	Jefferson Elementary School	Second-Tier Residence	59	60	1	None	12
MR-4.5		First-Tier Residence	68	69	1	A/E	6
Site-36	Backyard of 2611 Heullebury Court	First-Tier Residence	69	70	1	A/E	5
MR-4.6		First-Tier Residence	69	69	0	A/E	6
Site-33	8370 Mediterranean Court	First-Tier Residence	72	72	0	A/E	7
MR-4.7		Second-Tier Residence	66	66	1	A/E	4
Site-101	In front yard of 8378 Mediterranean Way	Second-Tier Residence	65	65	0	None	4
MR-4.8		First-Tier Residence	70	71	0	A/E	9
MR-4.9		First-Tier Residence	70	70	0	A/E	5
MR-4.10		First-Tier Residence	70	71	1	A/E	6
MR-4.11		Second-Tier Residence	62	62	0	None	11
Site-37	In park	Park	70	70	1	A/E	4

Receiver	Location	Type of Development	Existing (2004) Loudest Hour Noise Level, dBA	Predicted (2030 Build) Loudest Hour Noise Level, dBA	Noise Increase	Impact Type ¹	Units Represented
MR-4.12		First-Tier Residence	69	70	1	A/E	6
MR-4.13		Second-Tier Residence	61	61	1	None	14
Site-41	Side yard of 2808 Symphony Ct.	First-Tier Residence	66	67	1	A/E	8
MR-4.14		Second-Tier Residence	63	64	1	None	10
MR-4.15		First-Tier Residence	72	72	0	A/E	8
MR-4.16		Second-Tier Residence	64	64	1	None	6
MR-4.17		Park	71	72	0	A/E	2
Site-39	Backyard of 31 Lochness	First-Tier Residence	72	72	0	A/E	12
Site-40	Front yard of 14 Lochness	Second-Tier Residence	63	63	1	None	12
Site-43	Backyard of 2800 Marter Court	First-Tier Residence	69	70	1	A/E	8
MR-4.18		First-Tier Residence	66	67	1	A/E	4
MR-4.19		First-Tier Residence	62	63	1	None	5
MR-4.20		First-Tier Residence	70	71	0	A/E	8
MR-4.21		First-Tier Residence	67	68	1	A/E	5
Segment 5							
Site-89	Backyard of 2621 Stineway Ct.	First-Tier Residence	62	62	0	None	8
MR-5.1		First-Tier Residence	66	67	1	A/E	8
Site-44	Backyard of 2625 Coho Court	First-Tier Residence	72	72	1	A/E	3
Site-45	Front yard of 2607 Coho Court	First-Tier Residence	63	64	1	None	8
MR-5.2		First-Tier Residence	72	73	1	A/E	7
MR-5.3		First-Tier Residence	74	75	1	A/E	5
MR-5.4		Park	78	78	1	A/E	1
MR-5.5		First-Tier Residence	71	71	1	A/E	15
Site-49	Across from 9046 Salmon Falls	Second-Tier Residence	64	65	1	None	15
Site-48	Backyard of 9062 Salmon Falls	First-Tier Residence	70	70	1	A/E	16
Site-46	9017 Montoya	First-Tier Residence	73	73	1	A/E	36
Site-47	Front yard of 9024 Montoya	Second-Tier Residence	63	63	1	None	45
MR-5.6		First-Tier Residence	73	73	1	A/E	33
MR-5.7		Second-Tier Residence	66	67	1	A/E	42
Site-91	2928 Norcade Circle	First-Tier Residence	73	74	1	A/E	48
Site-50	9130 Tuolumne Drive	First-Tier Residence	76	77	1	A/E	0

Receiver	Location	Type of Development	Existing (2004) Loudest Hour Noise Level, dBA	Predicted (2030 Build) Loudest Hour Noise Level, dBA	Noise Increase	Impact Type ¹	Units Represented
Site-90	Northeast corner of Tuolumne Street and Payette Drive	Second-Tier Residence	68	69	1	A/E	34
Site-51	Rear parking lot of 9160 Sandal Tree	First-Tier Residence	71	71	1	A/E	20
Site-52	Apartments on Folsom Blvd	First-Tier Residence	69	69	1	A/E	14
MR-5.8		First-Tier Residence	68	69	1	A/E	7
MR-5.9		First-Tier Residence	71	71	1	A/E	6
MR-5.10		Second-Tier Residence	67	67	1	A/E	6
Site-53	Backyard of 3005 Tanya Ct.	First-Tier Residence	67	68	1	A/E	12
MR-5.11		First-Tier Residence	71	71	1	A/E	8
MR-5.12		Second-Tier Residence	67	67	1	A/E	6
MR-5.13		Second-Tier Residence	68	68	1	A/E	6
Site-54		First-Tier Residence	68	69	1	A/E	10
Site-92	Backyard of 3005 Suburu Ct.	First-Tier Residence	67	68	1	A/E	4
Segment 6							
MR-6.1		Open Space	72	73	1	None	0 ⁵
Site-55	Front of Church	Church	67	67	1	None	0 ⁶
Segment 7							
MR-7.1		Second-Tier Residence	62	63	1	None	5
MR-7.2		First-Tier Residence	64	65	1	None	18
Site-56	End of Northpoint Court	First-Tier Residence	66	67	1	A/E	2
MR-7.3		First-Tier Residence	68	69	1	A/E	3
MR-7.4		First-Tier Residence	68	69	1	A/E	5
Site-57	Backyard of 3125 Explorer Drive	First-Tier Residence	73	74	1	A/E	8
Site-58	Front yard of 3301 Union Springs	Second-Tier Residence	67	68	1	A/E	8
MR-7.5		First-Tier Residence	72	73	1	A/E	6
Site-59	End of Garden Wood Way	First-Tier Residence	73	74	1	A/E	6
Site-100	Backyard of 9901 Bailey	First-Tier Residence	71	72	1	A/E	19
MR-7.6		Second-Tier Residence	67	68	1	A/E	20
Site-102	Near 3214 Hogarth Drive	First-Tier Residence	82	83	2	A/E	9
Site-61	Backyard of 3149 Hogarth	Second-Tier Residence	65	66	1	A/E	0

Receiver	Location	Type of Development	Existing (2004) Loudest Hour Noise Level, dBA	Predicted (2030 Build) Loudest Hour Noise Level, dBA	Noise Increase	Impact Type ¹	Units Represented
	Dr.						
MR-7.7		First-Tier Residence	70	71	1	A/E	15
Site-99	Backyard of 3128 Hogarth Dr.	First-Tier Residence	73	75	1	A/E	2
Site-60	Backyard of 3135 Federalist Way	First-Tier Residence	77	78	1	A/E	9
Site-60b	Front yard of 3136 Federalist Way	Second-Tier Residence	72	73	1	A/E	16
MR-7.8		First-Tier Residence	76	77	1	A/E	9
Site-63	148 Lord Way	First-Tier Residence	76	76	0	A/E	10
Site-62	Front of 157 Duchess Way	First-Tier Residence	71	72	1	A/E	9
MR-7.9		Second-Tier Residence	63	64	1	None	4
MR-7.10		First-Tier Residence	67	69	1	A/E	5
MR-7.11		First-Tier Residence	70	71	1	A/E	2
MR-7.12		First-Tier Residence	69	70	1	A/E	6
MR-7.13		Second-Tier Residence	66	67	1	A/E	10
MR-7.14		First-Tier Residence	74	75	1	A/E	8
Site-64	Backyard of 3200 Fireside Ct.	First-Tier Residence	67	69	1	A/E	4
MR-7.15		First-Tier Residence	62	63	1	None	3
MR-7.16		Church	71	73	1	A/E	1
Segment 8							
Site-65	Backyard of 3048 Abbott Ct.	First-Tier Residence	61	61	1	None	4
MR-8.1		Second-Tier Residence	59	60	1	None	2
Site-93	Rear yard of 3044 Ryde	First-Tier Residence	66	67	1	A/E	5
MR-8.2		First-Tier Residence	66	67	1	A/E	5
MR-8.3		Second-Tier Residence	65	66	1	A/E	6
Site-66	Backyard of 3078 Portsmouth	First-Tier Residence	67	68	1	A/E	8
Site-67	In front of 3079 Portsmouth	Second-Tier Residence	64	64	1	None	5
MR-8.4		First-Tier Residence	64	65	1	None	5
Site-68	Backyard of 3126 Laurelhurst	First-Tier Residence	69	70	1	A/E	18
MR-8.5		Second-Tier Residence	66	66	1	A/E	2
MR-8.6		First-Tier Residence	68	69	1	A/E	8
MR-8.7		Second-Tier Residence	64	64	1	None	11

Receiver	Location	Type of Development	Existing (2004) Loudest Hour Noise Level, dBA	Predicted (2030 Build) Loudest Hour Noise Level, dBA	Noise Increase	Impact Type ¹	Units Represented
MR-8.8		First-Tier Residence	70	71	1	A/E	8
MR-8.9		Second-Tier Residence	68	69	1	A/E	2
MR-8.10		First-Tier Residence	69	70	1	A/E	6
Site-71	In front of apartments	First-Tier Residence	68	69	1	A/E	14
Site-70	Backyard of 3070 Swansea Way	First-Tier Residence	67	68	1	A/E	5
MR-8.11		Second-Tier Residence	64	65	1	None	2
MR-8.12		Second-Tier Residence	70	71	1	A/E	4
MR-8.13		Park	77	78	2	A/E	2 ⁷
MR-8.14		Park	66	67	1	A/E	5 ⁷
MR-8.15		Park	63	64	1	None	6 ⁷
Site-72	White Rock Community Park	Park	75	77	2	A/E	4 ⁷
MR-8.16		Park	65	67	1	A/E	2 ⁷
LT-2	In White Rock Park	Park	76	78	1	A/E	2 ⁷
MR-8.17		Park	68	69	1	A/E	3 ⁷
MR-8.18		First-Tier Residence	73	74	1	A/E	2
MR-8.19		Second-Tier Residence	69	70	1	A/E	2
Site-69	Backyard of 3107 Laurelhurst	Second-Tier Residence	60	60	1	None	2
LT-3	Near White Rock Road	Commercial	75	76	1	A/E	0 ⁸
MR-8.20		First-Tier Residence	69	70	1	A/E	3
Site-73	Colonial Gardens Apartments	First-Tier Residence	66	67	1	A/E	6
Site-74	In front of 10537 Silverwood Drive	Second-Tier Residence	63	64	1	None	5
Site-75	Backyard of 10546 Silverwood	First-Tier Residence	67	68	1	A/E	8
MR-8.21		First-Tier Residence	67	68	1	A/E	3
MR-8.22		First-Tier Residence	67	68	1	A/E	4
MR-8.23		Second-Tier Residence	62	63	1	None	3
MR-8.24		First-Tier Residence	67	68	1	A/E	8
MR-8.25		Second-Tier Residence	63	64	1	None	5
MR-8.26		First-Tier Residence	72	73	1	A/E	9
Site-76	Backyard of Paiute Way	First-Tier Residence	70	71	1	A/E	12
Site-77	Front yard of 10813 Paiute Way	Second-Tier Residence	65	65	1	None	10
MR-8.27		First-Tier Residence	65	66	1	A/E	6
MR-8.28		Second-Tier Residence	64	65	1	None	4

Receiver	Location	Type of Development	Existing (2004) Loudest Hour Noise Level, dBA	Predicted (2030 Build) Loudest Hour Noise Level, dBA	Noise Increase	Impact Type ¹	Units Represented
MR-8.29		First-Tier Residence	62	63	1	None	12
MR-8.30		First-Tier Residence	65	66	1	A/E	⁹
MR-8.31		First-Tier Residence	69	70	1	A/E	⁹
MR-8.32		Hotel	61	61	1	None	1
MR-8.33		Hotel	73	74	1	A/E	1
Segment 9							
LT-1	10933 Progress Ct.- First Covenant Church	Church	72	73	1	A/E	0 ¹⁰
Site-78	Front entrance to the 1st Covenant Church	Church	71	72	1	A/E	3 ¹¹
MR-9.1		Hotel	73	74	0	A/E	1
MR-9.2		Hotel	59	60	1	None	1
MR-9.3		College	76	76	1	A/E	0 ¹²
Site-87	Side yard of 460 Royal Crest Circle	Second-Tier Residence	57	58	1	None	6
Site-86	258 Royal Crest Circle	First-Tier Residence	60	61	1	None	8
Site-98	417/418 Royal Crest Circle	Second-Tier Residence	59	60	1	None	6
Site-96	Backyard of 450 Royal Crest Circle	First-Tier Residence	62	63	1	None	8
Site-84	Backyard of 11088 Erla Ct.	First-Tier Residence	58	59	1	None	2
Site-85	11082 Erla Ct.	First-Tier Residence	62	63	1	None	4
Site-83	On Hirschfield Way, in front of Church	Second-Tier Residence	63	64	1	None	8
MR-9.4		First-Tier Residence	62	63	1	None	10
MR-9.5		Second-Tier Residence	63	64	1	None	8
MR-9.6		First-Tier Residence	63	64	2	None	13
Site-82	Backyard of 10958 Hirschfield Way	Second-Tier Residence	63	65	2	None	1
MR-9.7		Second-Tier Residence	64	66	2	A/E	4
Site-81	2541 Berrywood Drive	First-Tier Residence	69	71	2	A/E	4
MR-9.8		First-Tier Residence	68	70	2	A/E	6
Site-80	End of Los Nogales	First-Tier Residence	64	67	2	A/E	4
MR-9.9		First-Tier Residence	64	66	2	A/E	6
MR-9.10		Second-Tier Residence	67	68	2	A/E	8
Site-79	Backyard of 10932 Nogalera Way	First-Tier Residence	67	70	2	A/E	12
MR-9.11		Hotel	67	67	1	A/E	1

1 Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC
2 East lawn Memorial Cemetery – Not an area of frequent human usage that would benefit from a lower noise level.
3 CSUS baseball fields - Not an area of frequent human usage that would benefit from a lower noise level.
4 Located in front of church where there is no outside activity.
5 Open space.
6 Located in front of church where there is no outside activity.
7 White Rock Park; every 400 feet equals one receiver.
8 Located in front of commercial area where there is no outside activity.
9 New townhouses exact location of building units not plotted.
10 400 feet equals one receiver.
11 Located in parking lot where there is no outside activity.
12 Located in front of private business school where there is no outside activity.

Table 2.13-5: Proposed Sound Walls

Proposed Sound Wall	Location	Affected Alternative	Height (feet)	Length (feet)	dBA Reduction	Number of Benefited Receivers
As Abatement:						
WB2	Alhambra Blvd. to T Street	Alt. 10D-1	10	1,480	6 to 7	19
WB4	1,400 feet west of Folsom Blvd. to Folsom Blvd.	Both alternatives	10	1,680	5 to 8	54
WB5	1,250 feet west of Routier Rd. to 1,230 feet east of Routier Rd.	Both alternatives	14	1,250	9 to 10	34
WB6	1,250 feet west of Routier Rd. to 1,230 feet east of Routier Rd.	Both alternatives	14	1,230	6 to 10	19
WB7	White Rock Park	Both alternatives	14	1,330	7 to 14	26
WB8	Zinfandel Drive WB on-ramp	Both alternatives	14	1,450	7 to 14	53
WB9	Folsom Blvd. to existing wall at Sunrise Blvd.	Both alternatives	14	2,000	7 to 10	40
EB9	Folsom Blvd. to 1,700 feet east of Folsom Blvd.	Both alternatives	14	2,030	7 to 8	32
EB11A	Bradshaw Road to Mather railroad crossing	Both alternatives	14	6,580	8 to 15	111
EB11B	Routier Road to Mather railroad crossing	Both alternatives	14	2,600	6 to 15	42
EB12	Between Mather Field Road and the White Rock POC	Both alternatives	14	2,550	5 to 10	38
As Potential Enhancement:						
WB3	Watt Ave. to Salmon Falls Park	Both alternatives	10	2,670	5	5
EB2-2A	Alhambra Blvd. to 39 th Street	Alt. 10D-1	10	3,400	5 to 8	58
EB3	39 th Street to 63 rd Street	Alt. 10D-1	10	2,210	<5	0
EB4	39 th Street to 63 rd Street	Alt. 10D-1	10	1,570	6	2
EB5	39 th Street to 63 rd Street	Alt. 10D-1	10	1,180	7 to 9	7
EB6	39 th Street to 63 rd Street	Alt. 10D-1	10	2,580	5 to 7	21
EB7	39 th Street to 63 rd Street	Alt. 10D-1	10	680	6	4
EB8	How Ave. to Newcoms Ct.	Alt. 10D-1	16	1,495	5	
EB10	1,700 feet west of Mayhew Rd. to Mayhew Rd.	Both alternatives	10	1,730	6	8

Table 2.13-6. Construction Equipment Noise

Type of Construction Equipment	Maximum Level, dBA at 50 feet
Scrapers	89
Bulldozers	85
Heavy trucks	88
Backhoe	80
Pneumatic tools	85
Concrete Pump	82
Impact Pile Driver	95 to 105

2.14 ENERGY

Both build alternatives would reduce the energy demand by easing congestion and improving traffic flow along US 50. This would increase fuel efficiency and reduce energy demand. The bus/carpool lanes would also encourage ridesharing that reduces energy demand further. Therefore, the project will not have any direct, indirect, short-term, long-term or unavoidable impacts on energy demand or resources.

BIOLOGICAL ENVIRONMENT

INTRODUCTION

Caltrans completed a Natural Environment Study Report (NESR) for the project in September 2005. A copy of this study is available from the Caltrans District 3 office in Sacramento.

Methodology

A list of species and habitats potentially occurring within the project vicinity was developed based on information compiled from the US Fish and Wildlife Service (USFWS), California Department of Fish and Game's Natural Diversity Data Base (CNDDDB), and the California Native Plant Society. A list of sensitive species considered as part of this evaluation is included in Appendix A of the NESR.

Caltrans biologists conducted field surveys of the project site to assess existing natural resources and potential impacts. Emphasis was placed on the special status species that may occur. The project site was field reviewed to 1) identify habitat types; 2) identify potential wetlands; 3) identify factors indicating the potential for rare species; 4) identify rare species present; and 6) identify potential problems for the study.

Some of the plants which were considered, though not formally listed as rare or endangered under the California Endangered Species Act, meet the definitions of Section 1901, Chapter 10 (Native Plant Protection) of the California Fish and Game Code, and are eligible for State listing. These plant species were given equal consideration during the project assessment as if they were already listed species.

Caltrans District 3 biologist Erik Schwab evaluated the presence of sensitive species and habitats on June 24 and July 14, 2005.

2.15 WETLANDS AND OTHER WATERS

2.15.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 USC. 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that prohibits discharge of dredged or fill material if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the US Army Corps of Engineers (USACE) with oversight by the USEPA.

The Executive Order (EO) for the Protection of Wetlands (11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as FHWA, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

Wetlands and waters are regulated at the state level primarily by the Department of Fish and Game (CDFG) and the Regional Water Quality Control Boards (RWQCB). Sections 1600-1607 of the Fish

and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

2.15.2 Affected Environment

Caltrans District 3 biologist Erik Schwab conducted field reviews within the project on June 24 and July 14, 2005. No wetlands were identified within the project's environmental study limits.

An open drainage ditch runs along the EB lanes of US 50 under the White Rock Pedestrian Overcrossing (POC) east of Mather Field Road. The open drainage ditch was surveyed to determine if it met all three criteria of a wetland (hydrology, hydrophytic plants, and hydric soils). Water in the ditch originated from nearby commercial landscaping (lawn irrigation) and not from tributaries of creeks or streams. The drainage ditch also appears to receive storm water runoff from US 50. After digging several test holes, it was determined that the soils were not hydric, the third wetland delineation criteria.

2.15.3 Environmental Consequences

Build Alternatives

The project does not propose to place fill within jurisdictional waters of the United States or special aquatic sites during the course of this project, and therefore a CDFG "Streambed Alteration Agreement" 1602 permit, an USACE section 404 permit, or a RWQCB section 401 certification for effects to jurisdictional "Waters of the United States", will not be required.

An environmentally sensitive area (ESA) fence will be installed under the existing White Rock POC and areas of new construction that cross the drainage ditch to prevent fill and equipment from entering the ditch. Caltrans will also adhere to specific BMP's and erosion control to further prevent filling of the ditch.

2.16 PLANT SPECIES

2.16.1 Regulatory Setting

The USFWS and CDFG share regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA).

This section discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et. seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et. seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

On February 3, 1999, President Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration guidance issued August 10, 1999 directs the use of the state's noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.16.2 Affected Environment

The entire length of the project area consists of extensive residential and commercial development. Other than the elderberry bush near the Bradshaw Road exit, habitat for sensitive plant or animal species is not available within the immediate project area, and none were detected during field reviews. Impacts to sensitive biological resources are not expected to occur during the course of constructing the freeway improvements. All work (including culvert repair and replacement) will be confined to the operating right of way and is not expected to affect adjacent areas. No aquatic or riparian habitat is available within the immediate work zone, and no aquatic species or riparian dependant species will be affected. No vegetation providing any potential nest and roost sites for sensitive bird species will be removed by the project. No vernal pools were discovered within or adjacent to the operating right of way.

A list of sensitive species considered as part of this evaluation, including all potential sensitive animal and plant species compiled from literature research, CNDDDB lists, and project files, was compiled as part of the NESR. Sensitive plants identified with the potential of occurring within the project limits include:

Listed Species

- Antioch Dunes evening-primrose (E)
- Slender Orcutt grass (T)
- Sacramento Orcutt grass (E)

Species of Concern

- Suisun Marsh aster (SC)
- San Joaquin spearscale (=saltbush) (SC)
- Tuolumne coyote-thistle (=button-celery) (SC)
- Stinkbells (SLC)
- Boggs Lake hedge-hyssop (CA)
- Amador (Bisbee Peak) rush-rose (SLC)
- Ahart's (dwarf) rush (SC)
- Red Bluff (dwarf) rush (SC)
- Delta tule-pea (SC)
- Legenere (SC)
- Mason's lilaeopsis (SC)
- Pincushion navarretia (SC)
- Valley sagittaria (=Sanford's arrowhead) (SC)

(E) = Endangered

(T) = Threatened

(SC) = Species of Concern

(SLC) = Species of Local Concern

(CA) = Listed by the State of California but not the US Fish and Wildlife Service

Ruderal vegetation and landscape plantings also occur along US 50. Ruderal vegetation includes: fennel (*Foeniculum vulgare*), wild oats (*Avena fatua*), mustard (*Brassica kaber*), Malva (*Malva neglecta*), and brome spp. Landscape plantings include: podocarpus (*Podocarpus macrophyllus*), oleander (*Nerium oleander*), eucalyptus spp. and pistachio (*Pistacia vera*) trees.

Because no other listed species or critical habitats were discovered during surveys along the whole of the length of the project, we are requesting a "Not Likely to Adversely Affect" determination for VELB from the U.S. Fish and Wildlife Service.

2.16.3 Environmental Consequences

Build Alternatives

The project is located in an urban setting. Impacts to sensitive plants are not expected to occur during the course of project construction. All work will be confined to within state right of way and is not expected to impact adjacent areas. Although temporary construction easements may be required for sound wall construction, no sensitive plants are expected in these areas (sound walls are located in developed urban areas). No aquatic or riparian habitat is located within the immediate work zone. The project does not remove sensitive vegetation. Habitat for sensitive plant species is not available within the immediate project area, and none were detected during field review.

2.16.4 Avoidance, Minimization, and/or Mitigation Measures

In order to reduce the potential of introducing invasive or non-native plant species into the project area and to comply with EO 13112 (Invasive Species), only native California plant species that are appropriate for the project area shall be used. All off road construction equipment shall be cleaned of potential noxious weed sources (mud and vegetation) before project entry is granted, as well as after entering a potentially infested area and before moving on to another. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Equipment washing stations shall be placed in areas that afford easy containment and monitoring outside of the project area. Furthermore, only native plant species appropriate for the project area will be used in any erosion control or re-vegetation seed mix. No dry farmed straw will be used, and certified weed-free straw shall be required where erosion control straw is to be used.

2.17 ANIMAL SPECIES

2.17.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The USFWS, the National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the CDFG are responsible for implementing these laws. Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- Endangered Species Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1601 – 1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

2.17.2 Affected Environment

The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Although none are expected, if impacts to active nests or individual birds are expected, Caltrans will consult with USFWS regarding appropriate action to comply with the MBTA.

Purple Martin (*Progne subis*)

The Purple Martin is a State Species of Special Concern. This species is uncommon to rare, and a local summer resident in a variety of wooded, low-elevation habitats throughout the state; a rare migrant in spring and fall, and absent in winter. The bird uses valley foothill and montane hardwood, valley foothill and montane hardwood-conifer, and riparian habitats. In Northern California, purple martin is an uncommon to rare local breeder inland (McCaskie et al. 1979). It inhabits open forests, woodlands, and riparian areas in breeding season, and is found in a variety of open habitats during migration, including grassland, wet meadow, and fresh emergent wetland, usually near water.

Purple Martins tend to nest in old woodpecker cavities, sometimes in human-made structures; in nesting boxes, under bridges, and in culverts. Nests are often located in tall, old isolated trees or snags in open forests or woodlands. Purple Martins nest from April to August, with peak nesting activity in June.

The closest known nesting sites to the project area are all in or near downtown Sacramento: 35th and T Streets, US 50 and 20th Street, and under Interstate 5 immediately east of the California Railroad Museum.

White-throated Swifts (*Aeronautes saxatalis*)

For breeding and roosting, white-throated swifts require crevices in cliffs, bluffs, canyon walls, and large rocks, but readily accept man-made habitats, such as bridges, viaducts, freeway overpasses, tall urban buildings and even highway roadcuts blasted out of bedrock. They breed from near sea level (along the coast) to about 7,000 feet (in the Yosemite Sierra), and range widely while foraging over deserts, foothills, mountains (to over 14,000 feet), lakes, and along the seacoast. Early in the morning, they are often seen skimming the calm surface of ponds, lakes and rivers while drinking.

White-throated swifts were found nesting/roosting in structural weep-holes in the following locations in the project area:

- The Elmhurst Viaduct (west of Stockton Blvd.)
- Brighton Overhead (east of 65th Street)
- Routier Road Overcrossing (Routier Road and US 50)
- Mather Field Overcrossing (west of Mather Field Road)
- West Citrus Overhead (west of Sunrise Blvd.)

A survey for the presence of swallows and other nesting birds was completed on March 16, 2006 for the White Rock pedestrian overcrossing (POC). No former or current sign of nesting birds were discovered. A Caltrans biologist conducted a survey at the Manlove POC on October 16, 2006. The POC contained two expansion joints and approximately ten weep-holes, features that were inaccessible. As a result, presence of potential nest sites for birds, i.e., white-throated swifts, will be assumed.

Bats

It is possible that between February 15th and September 1st bats may try to roost in bridges and overpasses spanning US 50 between Sunrise Boulevard and downtown Sacramento. These bridges and overpasses have features suitable for both daytime roosts (i.e., bridge deck expansion joints) and nighttime roosts. The following are bat species known to roost on bridge structures (Barbour and Davis, 1969; Davis and Cockrum, 1963; Kunz, 1982):

Species Commonly Found in Bridges

<i>Antrozous pallidus</i>	Pallid bat
<i>Eptesicus fuscus</i>	Big brown bat
<i>Myotis lucifugus</i>	Little brown myotis
<i>Myotis yumanensis</i>	Yuma myotis
<i>Tadarida brasiliensis</i>	Mexican free-tailed bat

Species Sometimes Found in Bridges

<i>Corynorhinus townsendii</i>	Townsend's big-eared bat
<i>Myotis californicus</i>	California myotis
<i>Myotis ciliolabrum</i>	Small-footed myotis
<i>Myotis evotis</i>	Long-eared myotis
<i>Myotis thysanodes</i>	Fringed myotis
<i>Myotis velifer</i>	Cave myotis
<i>Myotis volans</i>	Long-legged myotis

Caltrans biologists conducted bat surveys on July 16th and 17th, 2005. Bat surveys were completed at all bridges, viaducts, over-crossings, and other structures where bats may roost/nest within the project area. Only two species of bats were identified day-roosting in the bridges: Big Brown bats and Mexican Free-tailed bats, but other species may be using these roosting sites. The following is a list of sites that were surveyed:

1. Elmhurst Viaduct
2. Brighton Overhead
3. Folsom Blvd. Undercrossing (east of Brighton Overhead)
4. State College Undercrossing (Hornet Drive)
5. West Citrus Overhead
6. Routier Rd. Overcrossing, Mather Spur Overcrossing, Mather Field Overcrossing, Zinfandel Dr. Overcrossing

Caltrans also conducted a bat survey at the White Rock POC in March 2006. The survey of the POC did not reveal any current or former bat species roosting within or on the over-crossing structure. A Caltrans biologist conducted a survey at the Manlove POC on October 16, 2006. The POC contained

two expansion joints and approximately ten weep-holes, features that were inaccessible. As a result, presence of bats in the expansion joints will be assumed.

Big Brown Bat (*Eptesicus fuscus*)

This species is larger than the species of *Myotis* in California. It's distinguished by a combination of features: ears and wing membranes are nude and darkly pigmented, color brownish and rather glossy; two lower premolars and a single upper premolar.

A widespread and common species, big brown bats frequently enter buildings, and sometimes invade attics and abandoned buildings in numbers. The bats enter caves, especially in winter, and tend to remain near the entrance. Big brown bats are found from Columbia and Venezuela and north to Canada, including the Greater Antilles, and east to the Atlantic coast.

Mating occurs in August or September, with a single young born in June. The big brown bat hibernates in cold weather, but it is much hardier than most species and not infrequently forages in winter evenings (Jameson and Peters 1988).

Mexican Free-tailed Bat (*Tadarida brasiliensis*)

The Mexican free-tailed bat is the most common free-tailed bat in California. It assembles in large numbers on occasion, in buildings, caves or mine shafts, from sea level to 5,000 feet or more in the mountains. This species is migratory, but some numbers are present in California throughout the year. Mexican free-tailed bats are found across southern United States to Atlantic coast, south through Northern South America, including the greater Antilles.

Mexican free-tailed bats breed in late winter. A single young is born from late June to early July (Jameson and Peters 1988).

Bats were found at the following project locations:

- The Elmhurst Viaduct – at the Caltrans Maintenance Station located at 1920 35th Street. (Mexican Free-tailed bats).
- The West Citrus Overhead, on Folsom Blvd. above Sacramento light rail lines. (Mexican Free-tailed and Big Brown bats).

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

During biological surveys conducted in June 2006, a lone elderberry bush with two exit holes was discovered adjacent to the project. The bush is located along WB US 50 on the north side of the freeway east of the Bradshaw Road in a ruderal non-riparian commercial area. The bush is located outside of State right-of-way on the north side of a chain link fence on property owned by the County of Sacramento (see Figure 2.1-1k)

2.17.3 Environmental Consequences

The project is located in an urban setting. No aquatic or riparian habitat is located within the immediate work zone, and no aquatic species or riparian dependant species are expected to be affected.

2.17.3.1 Potential Impacts to Purple Martin and White Throated Swifts

Alternative 10D-1

Known Purple Martin nesting sites in the project area are all in or near downtown Sacramento: 35th and T Streets, US 50 and 20th Street, and under Interstate 5 immediately east of the California Railroad Museum. White-throated swifts were found nesting/roosting in structural weep-holes in the Elmhurst Viaduct, Brighton Overhead, Routier Road Overcrossing, Mather Field Overcrossing, and West Citrus Overhead.

A pre-construction survey for both white-throated swifts and Purple Martins will be completed and weep holes in bridges plugged/covered before project work commences. The project would not likely adversely affect the continued existence of these two species.

2.17.3.2 Potential Impacts to Bats

Build Alternatives

Bat surveys were completed at all bridges, viaducts, over-crossings, etc. where bats may roost/nest within the project area. Only two species of bats were identified day-roosting in the bridges: Big Brown bats and Mexican Free-tailed bats, but other species may be using these roosting sites.

Mitigation for bats will require a pre-construction survey and the placement of stiff wire mesh to block bats from roosting in expansion joints in the above-mentioned locations. Wire mesh should be installed between September 1st and February 15th. With mitigation measures in-place, the project is not likely to adversely affect bats.

2.17.3.3 Potential Impacts from Replacement of the White Rock and Manlove Pedestrian Overcrossings

Build Alternatives

The project has the potential to impact migratory birds species by not allowing them to nest in/on adjacent trees. Avoidance of nesting birds could be accomplished by pre-construction surveys to determine presence of nesting birds, and tree removal before commencement of the build phase of the project, typically before nesting season begins. Nesting season is from March 1 to September 1. Tree species possibly affected by this project include: eucalyptus, podocarpus, maple, crepe myrtle, pine, oleander, and walnut.

The Manlove POC includes two expansion joints and approximately ten weep-holes. The presence of potential nest sites for birds, i.e., white-throated swifts, will be assumed.

2.17.3.4 Potential Impacts to the Valley Elderberry Longhorn Beetle

Build Alternatives

Caltrans has requested a "may affect, not likely to adversely affect" concurrence from the US Fish and Wildlife Service. To prevent contact with the elderberry bush, Caltrans proposes surrounding the bush with an environmentally sensitive area fence. A Caltrans biologist will also inform the contractor that the elderberry bush hosts a listed species and that no construction activity would be allowed to directly or indirectly affect the bush. The project includes constructing a concrete wall in front of the bush, which would further protect this bush from direct or indirect impacts.

2.17.4 Avoidance, Minimization, and/or Mitigation Measures

Migratory Birds/Raptors

A pre-construction survey for both white-throated swifts and Purple Martins will be completed and weep holes in bridges plugged/covered before project work commences.

It is anticipated that migratory birds (swallows and Purple Martins) may try to nest on bridge structures during the nesting season (March 1st to September 1st). The contractor will take measures as necessary to prevent nesting on portions of the structures that will cause conflict between performing necessary work and nesting Purple Martins and swallows. If at all possible, work will be performed outside of nesting season in order to avoid nesting birds.

Purple Martins and swallows will be allowed to nest in portions of the bridge where conflicts with construction are not anticipated.

Prior to March 1st, exclusionary devices such as wire mesh will be used to block access to nesting sites where work will be performed and left in place until work is completed.

If nesting areas cannot be excluded, daily removal of partially completed nests is permitted between March 1st and August 31st to discourage nesting. If new nests are built, or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted.

A pre-construction survey should be done prior to project commencement to determine the presence of nesting birds.

Caltrans recommends that the removal of any woody vegetation (trees and shrubs) required for the project is completed between September 1st and February 1st, outside of the predicted nesting season for raptors and migratory birds in this area. Vegetation removal outside this time period may not proceed until a survey by a qualified biologist determines no nests are present or in use.

If woody vegetation removal, construction, grading, or other project-related improvements are scheduled during the nesting season of protected raptors and migratory birds (February 15th to September 1st), a focused survey for active nests of such birds will be conducted by a qualified biologist within two weeks prior to the beginning to project-related activities. If active nests are found, Caltrans will consult with USFWS regarding appropriate action to comply with the Migratory Bird Treaty Act of 1918 and with CDFG to comply with provisions of the Fish and Game Code of California. If a lapse in project related work of two weeks or longer occurs, another survey and, if required, consultation with USFWS and CDFG will be required before the work can be reinitiated.

Bats:

The contractor will take such measures as necessary to prevent disturbing portions of the bridge structure that will cause conflict between performing necessary work and roosting bats.

Bats will be allowed to roost on portions of the bridge where conflicts with construction are not anticipated as determined by a biologist. If contractor work does not conflict with bat roosting, then no further measures are required.

If work interfering with known bat roosts or potential bat roosting structures is proposed to occur between February 16th and October 31st, exclusionary devices such as wire mesh will be used to block access to bat roosting sites in expansion joints near where work will be performed. Under the direction of a biologist, the exclusionary devices will be installed after October 31st, but before March 1st, and left in place until work is completed, and then removed to allow the return of roosting bats.

Prior to any bat exclusions, a biologist will check the expansion joints for wintering bats. If there is potential for wintering bats, bat exclusions are best performed in the fall (September 1st to October 15th) of the year prior to construction.

An optional measure is to install, prior to March 1st, a temporary bat roost ("bat box") near the bridge structure to discourage the use of more marginal day roost sites on the structure. If the contractor's work on the bridge structure occurs between November 1st and February 28th, then no further measures are required.

Recommendations

For all locations, exclusions will consist of durable stiff wire mesh (not bendable "chicken wire") with openings 3/4" or smaller nailed or screwed onto the structure so that the wire mesh is flush against the concrete with no openings. Wire mesh will extend at least two inches in each direction beyond the expansion joint or weep hole opening. All exclusion devices need to be installed between September 1st and February 15th. A biologist should be present during the exclusion device installation. At those locations (if any) where weep holes will be covered or where the weep holes covered access separate chambers (and do not connect to other inner chambers with open weep holes for escape), winter surveys will need to be performed to make sure any potential winter roosting colonies of white-throated swifts are not trapped in the bridge by exclusion devices.

These recommendations may change if design or construction methods/plans change or new information is made available.

The CDFG may require temporary replacement bat day roosts while the project is under construction.

Measures at Specific Locations:

1. Elmhurst Viaduct

A few bats (3 observed) were present in the expansion joint over the Caltrans equipment storage yard. That expansion joint should be excluded. Some swifts are using weep holes. Caltrans recommends exclusion covers for all weep holes in the immediate vicinity of work (from median to halfway point in each direction).

2. Brighton Overhead

There are no current signs of bat use. Swifts are using weep holes. Exclusion will be difficult to coordinate with heavy rail and light rail present. Caltrans recommends exclusion covers for all weep holes in the immediate vicinity of work (from median to halfway point in each direction).

5. West Citrus Overhead

A large colony of bats is using the two expansion joints in the median that run lengthwise on the bridge, mainly concentrated from the south abutment to Folsom Boulevard over the light rail tracks. Caltrans recommends fully excluding expansion joints (underneath and sides) if work will be occurring in their vicinity. Swifts also use the weep holes. Some weep holes have drainage plugs in them already, but not all. Recommend exclusion covers for all weep holes in the immediate vicinity of work.

Elderberry Bush:

The elderberry bush will be surrounded with an environmentally sensitive area fence. A Caltrans biologist will also inform the contractor of the presence and location of elderberry bush.

CUMULATIVE IMPACTS

2.18 CUMULATIVE IMPACTS

2.18.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines, Section 15130 describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

2.18.2 Cumulative Impacts Area

A Cumulative Impact Analysis was prepared by URS Corp. in September 2006. A copy is available from Caltrans District 3 in Sacramento.

The area for cumulative impacts evaluation related to transportation projects was the Study Area corridor around US 50 between downtown Sacramento and Sunrise Boulevard, including US 50, SR 99, I-5, and I-80 throughout and just outside Sacramento County. A larger area encompassing Rancho Cordova, Folsom, downtown Sacramento, and the unincorporated areas of Sacramento County between Sacramento and Folsom was used for evaluating the cumulative impacts related to development projects. These areas were selected because they would be most influenced by projects on US 50 and would rely on US 50 as a major transportation link.

2.18.3 Projects Considered in the Cumulative Impacts Evaluation

Table 2.18-1 at the end of this section lists the projects that have been included in the cumulative impacts evaluation. These projects were largely taken from the SACOG 2006 Metropolitan Transportation Plan (MTP) and from the Sacramento Transportation Authority Measure A and New Measure A project lists. Additional projects were included from city and county websites and discussions with city and county staff, as appropriate. A total of 52 transportation projects and 33 development projects are included in the cumulative impact analysis.

2.18.4 Potential Cumulative Impacts

For a cumulative impacts analysis to be effective, it must be limited to the effects that can be evaluated meaningfully. While there is no universally accepted approach to preparing a cumulative impacts analysis, Caltrans guidelines state that a cumulative impact analysis should focus only on 1) those resources adversely impacted by the project and 2) those resources in poor or declining health or at risk, even if project impacts are relatively small (Caltrans 2005b). Quantifiable impacts are generally not available for the proposed projects listed in Table 2.18-1, because these projects are still in the planning phase or have not yet been fully constructed. However, a qualitative cumulative impacts

assessment can be completed based on anticipated and known impacts from other, similar transportation and development projects that have been completed.

The proposed project has potential community impacts, namely to circulation, access, and traffic safety. However, measures put in place would reduce impacts. These impacts are discussed further in terms of their cumulative effects below. In addition, the project would have less than significant impacts to air and water quality (under CEQA). The cumulative effects of these impacts are discussed below as well, as both air and water quality within the project area have been determined to be in poor health.

2.18.5 Air Quality

The proposed project is located within the Sacramento Valley Air Basin, which has been designated by the USEPA as a non-attainment area for PM₁₀ and O₃. Based on the PM₁₀ monitoring records of the Sacramento Metropolitan Air Quality Management District, the project area does not exceed the primary federal 24-hour PM₁₀ standard of 150 ug/m³. The project would not increase vehicle miles of travel or truck volume and is anticipated to relieve future traffic congestion and improve level of services. Therefore, it is not expected to increase PM₁₀ emissions. According to 40 CFR 93.123(b)(1)(i) and (ii), this project is categorized as “not an air quality concern” for particulate matter. As a result, this project would not contribute to a PM₁₀ hot spot that would cause or contribute to violation of this standard.

The transportation projects such as the proposed bus/carpool lane extension project and those listed in Table 2.18-1 must be included in the SACOG MTP and Metropolitan Transportation Improvement Plan (MTIP), which conform to the State Implementation Plan (SIP). Before adopting the MTP and MTIP, SACOG performed a quantitative analysis to determine if implementation of the set of projects included in these documents would result in violations of the ozone and PM₁₀ air quality standard. Based on this analysis, SACOG has concluded that the set of projects included in the MTP and MTIP would not result in a violation of the ozone standard and would result in reduction of PM₁₀ emissions.

As the SACOG analysis considered all planned and programmed transportation projects included in the MTP and MTIP, the transportation projects listed in Table 2.18.1 have been analyzed and found not to contribute to a cumulatively considerable impact to air quality. Therefore, the impact of the project on regional air quality is considered to be less-than significant.

In addition, the development projects in Table 2.18-1 are also subject to air quality permitting requirements. Projects that are in conformance with the regional air quality plan and that meet regional air pollutant budgets (based on air quality models and analyses) would not be expected to have a negative cumulative impact.

The proposed project may result in the generation of short-term construction related air emissions, including fugitive dust (PM₁₀) and exhaust emissions from equipment. However, both fugitive dust and equipment emissions would be short-term and transitory in nature. Caltrans Standard Specifications are a required part of all construction contracts and should effectively reduce and control emission impacts during construction, as do local air district controls. As all construction activity would be subject to these regulations, the cumulative construction impacts to air quality for the projects listed in Table 2.18-1 would be less than significant.

2.18.6 Water Quality

Storm water from the project area indirectly runs into the American River. The reach of the American River within the project area is listed under Clean Water Act section 303(d) as impaired for water quality. The pollutants are listed as mercury and an unknown toxicity, both with a low priority.

In 1999, the SWRCB issued “NPDES Permit, Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for Caltrans Order No. 99-06-DWQ, NPDES No. CAS00003” (Caltrans Statewide Permit) that covers Caltrans’ highways, highway-related properties, facilities, and activities, such as maintenance stations, roadside rest areas, weigh stations, park-and-ride lots, and construction sites. In addition, the Caltrans Statewide Permit covers both wet- and dry-weather discharges from storm water conveyance systems. Caltrans is required to reduce pollutants in storm water discharges to the maximum extent practicable. For discharges from a construction site, toxic pollutants must be reduced using the best available technology (BAT) that is economically achievable, and conventional pollutants must be reduced using the best conventional technology (BCT).

For construction activities that disturb greater than 1 acre of soil, Caltrans shall obtain coverage under the “NPDES General Permit, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity Order No. 99-08-DWQ, NPDES No. CAS000002” (Construction General Permit) once a Notice of Construction has been filed for a specific project. The Construction General Permit is incorporated by reference into the Caltrans Statewide Permit.

For projects that will disturb greater than 1 acre (0.4 hectares) of soil during construction, the Construction General Permit requires that an effective Storm Water Pollution Prevention Plan (SWPPP) be developed and implemented to reduce construction effects on receiving water quality.

The transportation and development projects listed in Table 2.18-1 could lead to an increase in polluted storm water discharge to the American River. The increase in pollutants would come from sources such as household pesticides, increased vehicle traffic, and increased impervious cover. However, these projects would be subject to NPDES permit conditions and other regulatory controls to minimize and eliminate storm water pollution during construction and afterwards. As a result, any cumulative impacts of these projects to water quality would be minimized.

2.18.7 Circulation and Access

The proposed project would temporarily affect the White Rock and Manlove elevated pedestrian overcrossings. However, the project would reduce this impact by replacing these structures. The replacement structures will comply with current construction and American Disabilities Act standards. The existing structures will remain operational while the replacement is constructed.

The project would provide greater connectivity and accessibility to the existing bus/carpool lane system and other projects planned on US 50, SR 99, I-80, and I-5. The project would directly connect to an existing bus/carpool lane on US 50 from Sunrise Boulevard to east of the Sacramento-El Dorado County line. The Oak Park and I-5 Interchange projects (Table 2.18-1) would connect the US 50 bus/carpool lane to bus/carpool lanes on SR 99 and I-5, respectively. Additional projects would link bus/carpool lanes on I-5 with those on I-80 from Sacramento into Placer County.

Overall, the cumulative impact of this project as well as the development and transportation projects listed in Table 2.18-1 would be beneficial to circulation and access. There are several projects that would lead to greater connectivity of the road and highway network and increase road capacity. These projects would reduce congestion and decrease travel times for vehicular traffic, transit, and emergency services.

2.18.8 Traffic Safety

The cumulative impacts of the transportation and development projects listed in Table 2.18-1 may increase traffic safety concerns for motorists, pedestrians, and bicyclists. However, these concerns can be reduced through appropriate signage, lighting, and signaling to ensure the safe movement of cars, pedestrians, and bicycles throughout the road network. In addition, pedestrian and bicycle safety could even be improved with the upgrade and installation of dedicated pedestrian sidewalks and bicycle lanes where facilities were insufficient or nonexistent previously. For example, the Watt Avenue

Enhancements project would add sidewalks, lighting, and bicycle facilities to Watt Avenue between Antelope Road and SR 16 in Sacramento County.

2.18.9 Growth Inducement

This project seeks to reduce congestion, improve circulation, and encourage alternative means of commuting through the addition of a bus/carpool lane to US 50 between downtown Sacramento and Sunrise Boulevard. The project would provide greater connectivity within the bus/carpool lane system in the Sacramento region, which consists of existing and planned bus/carpool lanes on US 50, I-80, I-5, and SR 99. These improvements are being proposed because of demands put on the region's transportation system due to the existing rapid rates of growth in the area. The projects are also part of a long term Caltrans effort to encourage the use of transit and multi-passenger occupied vehicles. The proposed bus/carpool project is one of the transportation improvements included in the Preferred Scenario of SACOG's Regional Blueprint plan, which is intended to guide regional development through 2050 (see Section 2.1.1.2).

The Sacramento region has been growing rapidly over the past two decades and is expected to continue growing over the next 20 years. SACOG projects approximately 712,000 new residents in the six-county region between 2006 and 2025. Sacramento County alone is expected to add approximately 364,000 people between 2006 and 2025, a 41 percent increase. At the same time, job growth in Sacramento County is expected to exceed population growth by approximately 16 percent.

Growth in the region can be attributed to the availability affordable land and housing and a strong economy. This growth has been occurring, and will continue to occur, regardless of any highway and road improvements. The development projects listed in Table 2.18-1 are not clustered around any major road or highway improvement projects. Twenty-two of the 33 development projects have already been approved or are in progress. These projects are expected to add between 182,729 to 195,349 housing units in Sacramento County over the next 10-15 years and develop over 53,000 acres.

The existing development in Sacramento, Folsom, the suburbs, and along the US 50 corridor has resulted in congestion and travel delays along US 50 during peak hours. The current level of service (LOS) of US 50 within the Study Area during peak hours is F, where traffic flow breaks down and vehicles experience stop and go conditions. This congestion would only worsen with development anticipated for the years ahead.

While improvements in LOS along US 50 may increase the corridor's attractiveness to potential residents and businesses, the degree of capacity increase of the project in response to the rapid rates of planned growth in the region would be nominal at best. As a result, the project would not be growth inducing for several reasons.

The bus/carpool lane is designed to provide an alternative to single-occupancy vehicle travel and encourage drivers to combine vehicle trips, thus removing some cars from the highway. The project would not create excessive new capacity that would induce new, unplanned growth. The project would increase the LOS on portions of US 50 to E, where traffic operations are still at or near capacity and flow is unstable, and by 2030 the LOS is expected to fall back to F. Further, the design of the project limits the number of additional on-and-off ramps—this would restrict access to the bus/carpool lanes to certain areas. Finally, the project would not remove any key restraints to growth—it would not change any land use designations or open any new areas to development.

The project would not contribute to any cumulative growth inducement impacts with regard to the existing and planned bus/carpool lanes or the other transportation projects listed in Table 2.18-1. While the addition of transportation infrastructure may induce growth by allowing access to previously inaccessible areas, it does not remove constraints to growth alone.

Community comprehensive plans and planning laws, such as land use and zoning regulations, are most often the primary means of controlling growth and development. Local governments use these plans and regulations to encourage or discourage growth in their communities as they see appropriate. Any changes to these plans or regulations would involve public review and input. Other constraints to growth can include public utility services such as water, gas and electric, and sewage.

Most of the transportation projects listed in Table 2.18-1, including the project, would only reduce existing traffic congestion. The Sacramento region has grown so rapidly in the past 20 years that the degree of capacity improvement proposed by the related projects would be less than needed to meet current demands for adequate levels of service on the impacted routes.

2.18.10 Construction Related Traffic Impacts

While project construction is not anticipated to have any adverse impacts to traffic, construction is scheduled at the same time as several other road and highway improvement projects. Table 2.18-2 lists the transportation projects that are programmed between 2006-2015. The projects listed are those within the vicinity of the Study Area for which a schedule was available; there are several other road projects, both within the Study Area vicinity and throughout the Sacramento region, that are planned for the same time period. Further, many of the development projects listed in Table 2.18-1 will be under construction during this period as well.

There are number of major projects scheduled to take place simultaneously on US 50, SR 99, I-5, and I-80. There are also several extension and widening projects that are anticipated for the major roads within or intersecting the Study Area, including a series of downtown road network improvements to improve access to Sacramento's central business district.

Cumulative impacts related to the construction of these projects could include temporary road and lane closures, which could lead to traffic delays and impaired access to local businesses, commercial and tourist destinations, public recreational areas, and private residences. Impacts may occur throughout the US 50/SR 99/I-5/I-80 highway network, as well as in downtown Sacramento and throughout the Study Area. These impacts could adversely impact the provision of emergency services, public transportation, school buses, and other services dependent on the road and highway network.

A regional Transportation Management Plan (TMP) could be developed to address the cumulative traffic related impacts from the multiple transportation projects listed in the SACOG MTP and other plans. A regional TMP would outline construction requirements and restrictions to minimize traffic delays and maximize safety within project areas. The regional TMP would also develop strategies for public and motorist information, incident management, construction, demand management, and alternate routes. For example, a construction season map could be published each year to inform the public, local businesses, and local agencies of project locations and activities.

An example of a TMP is in Appendix A of the cumulative impact report.

2.18.11 Other Potential Impacts

Hazardous Materials. This project may encounter soil impacted with aurally deposited lead from vehicle emissions, asbestos and lead-based paint on bridge structures, soil and groundwater contamination due to leaking underground storage tanks, railroad operations, and abandoned or existing service stations. However, laws for the management of hazardous materials are designed to protect human health and the environment. Each project is required to remove exposed hazardous waste and follow disposal regulations. No cumulative impacts to hazardous waste are anticipated.

Natural Resources. This project is not expected to adversely impact natural resources, as it will occur in an already developed location. However, the number of transportation and development projects scheduled for construction within the next several years may result in an adverse cumulative impact.

Development projects may remove and divide wildlife habitat, increase impervious cover, and induce population growth and vehicle use, all which may lead to an adverse impact on natural resources.

However, mitigation policies (such as habitat replacement), construction BMPs, and requirements of federal, state, and local natural resource agencies such as the California Department of Fish and Game are expected to minimize and/or eliminate any adverse impacts to natural resources. In addition, environmental reviews, comprehensive plans, and other public processes are in place to ensure that the impacts of new development to natural resources would be minimized.

Land Use. As this project would be adding transportation improvements to an already existing highway, it would be consistent with any pertinent land use policies and plans. Some land use changes would result with the construction of the transportation and development projects listed in Table 2.18-1. However, these projects would all be consistent with county and regional transportation and development plans within their respective jurisdictions. These plans include the regional Metropolitan Transportation Plan, the Sacramento County Transportation Improvement Plan, and local county and city general plans. No cumulative impacts to land use are anticipated.

Socioeconomic Impacts. This project would not have any adverse socioeconomic impacts. While there are minority and low-income populations within the Study Area, traffic impacts would be minimal, given the current LOS in the vicinity of these neighborhoods. As a result, the project would not contribute to a cumulative socioeconomic impact.

The proposed projects listed in Table 2.18-1 may have adverse cumulative socioeconomic impacts depending on the location of minority and low-income populations in the region. However, these projects cannot be developed unless they are consistent with their respective transportation and development plans, designed to ensure that new population growth and development does not have adverse socioeconomic impacts. As a result, no adverse cumulative impacts are expected.

Public Services. This project would not adversely impact parks, utilities, schools, or other public services. The bus/carpool lane is anticipated to reduce traffic congestion along US 50, which would improve emergency response times for police, fire, and medical first responders. As a result, this project would have a beneficial cumulative impact to public services.

The transportation and development projects listed in Table 2.18-1 would increase the demand for public facilities and services including parks, utilities, schools, and emergency services. As community development plans typically require the provision of these services relative to the potential demand of any new development, the cumulative impact to public services may be beneficial for the region.

While the cumulative effect of the transportation projects in Table 2.18-1 is expected to be beneficial in terms of reducing congestion and increasing connectivity, emergency response times could be temporarily affected if multiple projects are constructed concurrently along emergency response routes. However, emergency responders would be notified in advance of any construction plans and schedules. As a result, no cumulative impacts to public services are expected.

Visual Resources. This project would have a minimal impact to visual resources from the addition of bus/carpool lanes along US 50. The transportation and development projects listed in Table 2.18-1 may have an adverse cumulative impact on visual resources, due to the amount of development and number of road projects scheduled for construction.

The development projects would change the character of the landscape from agricultural or undeveloped land to that of residential, mixed use, and commercial areas. Transportation projects would widen and add roads where none existed before. These projects would be subject to design guidelines, public processes, and other measures to ensure that their impact to visual resources would

be minimal. In addition, several of these projects may have positive impacts to visual resources, such as those that improve streetscapes or redevelop abandoned industrial areas. As a result, the impact of these projects to visual resources would be minimized.

Cultural Resources. This project would not have any adverse impacts to cultural resources. While cultural resources may be present at the sites of the transportation and development projects listed in Table 2.18-1, effective avoidance, minimization and mitigation measures are available if any are discovered. As a result, no cumulative impacts to cultural resources are expected.

Table 2.18-1. Cumulative Impacts Project List: Transportation and Development Projects 2006-2027

Project	Approved or In Progress	Jurisdiction of Proposed Projects	Description
Road and Highway			
SACOG MTP 2027			
Caltrans			
District 3 Traffic Operations System Projects	X	Caltrans District 3	Variety of projects including ramp meters, bus/carpool on-ramp lanes, cameras, and signage improvements
US 50 Rehabilitation	X	Sacramento, Yolo County	Rehabilitate pavement from 65th street to Route 80 in West Sacramento
US 50 Bus/carpool Lanes (1)	X	El Dorado County	Add bus/carpool lanes from El Dorado Hills Blvd to South Shingle Springs/Ponderosa Road
US 50 Bus/carpool Lanes (2)—the Project	X	Sacramento County	Add bus/carpool lanes from downtown Sacramento to Sunrise Blvd
I-80 Bus/carpool Lanes (1)	X	Sacramento County	Addition of bus/carpool lanes in the median from the Sacramento River Bridge to the Sacramento Regional Transit Light Rail Station
I-80 Bus/carpool Lanes (2)	X	Placer County	Addition of bus/carpool lanes, auxiliary lanes, and Traffic Operating System improvements from the Sacramento-Placer County line to east of SR 65
I-5 Rehabilitation	X	Sacramento County	Rehabilitate I-5 structure and pavement between Richards Blvd and SR 160
I-5 Bus/carpool Lanes (1)	X	Sacramento County	Addition of bus/carpool connectors at I-5/I-80 interchange and bus/carpool lanes along I-5 from the interchange to Hood-Franklin Road; includes river front enhancements, bus/carpool lane connectors, and other modifications to the I-5/US 50 Interchange
I-5 Bus/carpool Lanes (2)	X	Sacramento County	Addition of bus/carpool lanes from the I-80 intersection to the Sacramento International Airport
Oak Park Interchange (SR 99 Bus/carpool Lane Connector)	X	Sacramento County	Addition of bus/carpool lane connector between SR 99 and US 50
SR 99-I-5 Intersection	X	Sacramento County	Addition of lanes between I-5 and SR 99/70
I-80/US 50 Bus/carpool Lanes	X	Yolo County	Addition of bus/carpool lane on I-80/US 50 from Richards Blvd in Davis to Sacramento County line
US 50-Harbor Blvd Interchange	X	Yolo County	Improvements to US 50-Harbor Blvd Interchange, including road widening and addition of auxiliary lanes
City of Elk Grove			
SR 99-Sheldon Road Interchange	X	Elk Grove	Improvements to SR 99-Sheldon Road interchange
City of Folsom			
US 50 Interchanges	X	Folsom	Four-lane interchange construction projects at Oak Ave and Empire Ranch Road extensions
City of Rancho Cordova			
US 50-Mather Field Rd Interchange	X	Rancho Cordova	Streetscape, lighting, and other enhancements to the US 50/Mather Field Road interchange
City of Sacramento			
65th Street Improvements	X	Sacramento	Sidewalk, curb, gutter, bike, and pedestrian improvements along 65th Street from Lemon Hill to Fruitridge, including the US 50 interchange; widen 65 th Street between US 50 and Broadway

Project	Approved or In Progress	Jurisdiction of Proposed Projects	Description
Folsom Blvd Widening and Enhancements	X	Sacramento, Rancho Cordova, Sacramento County	Widen Folsom Blvd to four lanes from Hornet Drive to 65 th Street, and from 4 to 6 lanes between Mather Field Road and Coloma Road; includes bicycle, pedestrian, streetscape, and interchange improvements between 65 th Street and Sunrise Blvd; Folsom Blvd has recently been widened to 4 lanes between Coloma and Olson Drive and had a two-way turn lane added between Sunrise Blvd and Aerojet Road
North Downtown Access	X	Sacramento	Various street widening and extension projects to improve access to the central business district; includes street extensions and widening of several downtown streets and a bridge over I-5 between the riverfront and Crocker District
Intermodal Transportation Facility	X	Sacramento	Develop an intermodal transportation terminal for heavy rail, light rail, and bus service
Ramona Avenue	X	Sacramento	Extend Ramona Ave from Brighton Ave to Folsom Blvd, parallel to US 50.
Consumes River Blvd Extension	X	Sacramento	Extension of Consumes River Blvd from Franklin Blvd west past I-5 to Freeport Blvd, including I-5/Consumes River Blvd interchange and widening between Franklin Blvd and Center Pkwy; this would provide a connection between I-5 and SR 99
Florin-Perkins Road Widening	X	Sacramento	Widen Florin-Perkins Road to six lanes between Folsom Blvd and Fruitridge Road; although outside project area, may contribute to construction impacts
I-5 Interchange Enhancements	X	Sacramento	Improvements to I-5 interchanges at Richards Blvd, SR 99, and West El Camino
I-5 Road Widening	X	Sacramento	Addition of auxiliary lanes to I-5 between SR 99 and Del Paso Road
I-80 Interchange Enhancements	X	Sacramento	Improvements and expansion of I-80 interchanges at West El Camino Ave and Northgate Blvd
Kiefer Blvd Widening	X	Sacramento	Widen Kiefer Blvd from Florin-Perkins Road to South Watt Ave with eventual four lane extension to Sunrise Blvd
Power Inn Road Widening	X	Sacramento	Widening of Power Inn Road from Folsom Blvd to Fruitridge Road
SR 16 (Jackson Road)	X	Sacramento	Realign SR 16 as a four-lane road from Power Inn Road to South Watt Ave
City of West Sacramento			
US 50-Jefferson Blvd Interchange	X	West Sacramento	Modify and expand US 50-Jefferson Blvd interchange
El Dorado County			
US 50 Interchanges	X	El Dorado County	Improvements to US 50 interchanges at El Dorado Hills Blvd, Bass Lake Road, Cambridge Road, Missouri Flat Road, and Silva Valley Road; includes interchange modifications, widening on- and off-ramps, bus/carpool lanes, and auxiliary lanes
Sacramento County			
Folsom Blvd and Watt Ave	X	Sacramento County	Grade separation of Watt Ave and the light rail tracks south of Folsom Blvd intersection; part of Folsom Blvd Enhancements
US 50-Watt Ave Interchange	X	Sacramento County	Modify freeway interchange at US 50 and Watt Ave to accommodate bus/carpool lane, transit access, and bicycle/pedestrian improvements
Watt Ave/S. Watt Ave Enhancements	X	Sacramento County	Series of projects to enhance and widen Watt Ave and S. Watt Ave between Antelope Road and Florin Road; includes pedestrian and bicycle improvements, landscape and streetscape enhancements, and safety upgrades to Watt Ave between Antelope Road and SR 16

Project	Approved or In Progress	Jurisdiction of Proposed Projects	Description
Extend International Drive to Sunrise Blvd	X	Sacramento County	Extends International Blvd to Sunrise Blvd with bicycle and pedestrian facilities and eventual connection to US 50; outside of the project area but may contribute to traffic or construction impacts
Hazel Ave Widening	X	Sacramento County	Widening Hazel Avenue to six lanes from Placer County line to Folsom Blvd, includes improvements to US 50 interchange, carpool and transit lanes, and bicycle and pedestrian facilities
US 50 Connection	X	Sacramento County	Construct new connection between Grant Line Road through Aerojet property to US 50 near Hazel Ave
Zinfandel Drive to Douglas Road Extension	X	Rancho Cordova	Extend Zinfandel Drive to Douglas Road; outside of project area but may contribute to traffic or construction impacts
CITY OF SACRAMENTO			
R Street Improvements	X	Sacramento	Projects include curb and gutter, asphalt, street light and signs, and ADA improvements near new proposed development
Freeport and 21st Conversion	X	Sacramento	Conversion of Freeport Blvd, 19th St, and 20th Street from one-way to two-way streets between W Street and 4th Ave/Freeport Blvd
Central City Two-Way Conversions	X	Sacramento	Conversion of several downtown, one-way streets to two-way; candidate streets include: <ul style="list-style-type: none"> • 9th and 10th Streets between E and G Streets • J Street between 29th Street and Alhambra Blvd • L, P, and Q Streets between 16th and 29th Streets • N Street between 16th and 28th Streets • 19th and 21st Streets between H/I and W Streets (3 to 2 lane conversion) • 3rd Street between I and J Streets
CITY OF RANCHO CORDOVA			
Parkway-US 50 Interchange		Rancho Cordova	Connect the Rancho Cordova Parkway (Folsom Blvd) to US 50 between Sunrise and Hazel
Zinfandel Widening		Rancho Cordova	Widen Zinfandel Road between White Rock Road and US 50
Zinfandel –US 50 Interchange	X	Rancho Cordova	Modify and improve the US 50/Zinfandel Road interchange; in conjunction with other road widening and extension projects in the US 50/Sunrise Blvd interchange area
CALTRANS			
US 50 Auxiliary Lanes		Rancho Cordova	Addition of auxiliary lanes along US 50 between Mather Field Road and Zinfandel Road
ADDITIONAL MEASURE A PROJECTS			
Bradshaw Road Enhancements	X	Sacramento County, City of Elk Grove	Several improvements to Bradshaw Road between Grant Line Road and Florin Road, including road widening, intersection improvements, pedestrian and bicycle facilities, streetscape/landscape enhancements, and safety upgrades
Sunrise Blvd Enhancements	X	Sacramento County, Rancho Cordova	Phased series of improvements to Sunrise Blvd from Placer County line to Grant Line Road including road widening, grade separations, bicycle and pedestrian improvements, bridges, and streetscape/landscape enhancements
I-5/SR 99/US 50 Connector	X	Sacramento County, Rancho Cordova, Folsom	Planning, design, and construction of a new expressway on an as yet undefined alignment to link the cities of Elk Grove, Rancho Cordova, and Folsom

Project	Approved or In Progress	Jurisdiction of Proposed Projects	Description
US 50-Mayhew Road	X	Sacramento County	Widen Mayhew Road overcrossing at US 50
Existing Bus/carpool Lanes			
US 50 Bus/carpool Lane	NA	Sacramento and El Dorado Counties	Bus/carpool lane from Sunrise Blvd to El Dorado Hills
I-80 Bus/carpool Lane	NA	Sacramento (City and County)	Bus/carpool lane from Sacramento Regional Transit Light Rail Station to Sacramento-Placer County line
I-99 Bus/carpool Lane	NA	Sacramento (City and County)	Bus/carpool lane from US 50 to north of Grant Line Road
Development			
CITY OF SACRAMENTO			
Curtis Park Village		Sacramento	70-acre mixed use development; approximately 335-365 units
North Natomas		Sacramento (City and County)	9,000-acre mixed-use development; approximately 33,000 units.
The Railyards		Sacramento	238-acre urban infill mixed use development; between 7,500 and 11,800 units
65th Street/University Transit Village	X	Sacramento	49-acre mixed use, transit oriented development; 962 units
South 65th Street Area Plan	X	Sacramento	140-acre mixed use development; 738 units
R Street Corridor	X	Sacramento	128-net acre mixed use development; 2,800 units planned
Airport Meadowview/South Sacramento Area	X	Sacramento	Community planning area; approximately 12,000 acres of mixed use development planned; currently 30,000 units exist and approximately 15,000 more are expected by 2030; includes the Delta Shores development, a 1,000-acre mixed use development with 5,000-7,000 development units
Downtown Residential Development	X	Sacramento	Several projects totaling 1,650 units approved but unbuilt and several projects totaling 5,153 units proposed, including a 2,723 unit development at N 7th Street and Richards Ave
Totals for City of Sacramento			21,625 acres / 97,139 to 101,468 units
RANCHO CORDOVA			
Westborough		Rancho Cordova	1,274-acre mixed use development; approximately 5,000 units
Capital Village	X	Rancho Cordova	32-acre mixed use development; 827 units
Villages of Zinfandel	X	Rancho Cordova	562-acre mostly residential development; approximately 1,600 units; includes Stonecreek Condo development
Rio Del Oro		Rancho Cordova	3,929-acre mixed use development; approximately 12,600 units
North Douglas	X	Rancho Cordova	120.9-acre residential development; 680 units
North Douglas II		Rancho Cordova	41.5-acre residential development; 161 units
Mather East	X	Rancho Cordova	55-acre mixed use development; 129 units; includes the Sunrise Douglas Shopping Center
Anatolia I	X	Rancho Cordova	178-acre mixed use development; 1,038 units
Anatolia II	X	Rancho Cordova	162-acre mixed use development; 955 units
Anatolia III	X	Rancho Cordova	208-acre residential development; 879 units
Anatolia IV	X	Rancho Cordova	25-acre residential development; 203 units
Montelena	X	Rancho Cordova	158-acre residential development; 879 units
Sunridge Lot J	X	Rancho Cordova	65-acre residential development; 369 units

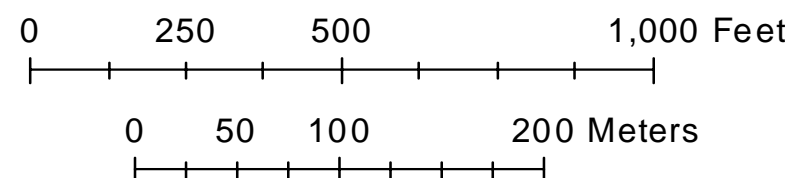
Project	Approved or In Progress	Jurisdiction of Proposed Projects	Description
Sunridge Park	X	Rancho Cordova	236-acre mixed use development; 953 units
Douglas 103, Douglas 98, Grantline 208, Arista Del Sol	X	Rancho Cordova	388-acre mixed use development; 2,624 units
The Preserve	X	Rancho Cordova	304-acre residential development; 2,703 units
Grantline 220, Kamilos Property, Shaliko Investors		Rancho Cordova	3,207-acre mixed use development; 5,459 units
Totals for Rancho Cordova			10,946 acres / 37,059 units
FOLSOM			
Downtown residential development	X	Folsom	11 projects totaling 7,392 units are currently under construction or under review (considers only those projects over 50 units)
Potential annexation of land south of US 50		Folsom, Sacramento County	Potential annexation of 3,584 acres south of Folsom and US 50; potential development of 11,340-14,630 units
Totals for Folsom			3, 584 acres / 18,732 to 22,022 units
SACRAMENTO COUNTY			
The Easton Project		Sacramento County	6,400-acre mixed use development south of US 50, between Hazel Ave and Prairie City Road; approximately 4,800 single family and multi-family units in two communities: Glenborough at Easton and Easton Place
<i>Other Planned Areas</i>		<i>The five areas below are anticipated to accommodate 25,000-30,000 new dwelling units total.</i>	
Florin-Vineyards		Sacramento County	3,766-acre mixed use development in South Sacramento; 8,950-12,066 units
North Vineyard Station	X	Sacramento County	1,594-acre mixed use development between Gerber and Florin and Vineyard and Hedge south of Sacramento
Vineyard Springs	X	Sacramento County	2,650-acre mixed use development between Gerber and Calvin and Bradshaw and Excelsior south of Sacramento
Elverta		Sacramento County	1,820-acre mixed use development directly north of Sacramento at the Placer County line; 4,500 units
East Antelope	X	Sacramento County	673-acre development northwest of Sacramento west of Citrus Heights at the Placer County line; remaining capacity of 382 units
Totals for Sacramento County			16,903 acres / 29,800 to 34,800 units
Grand total for development			53,058 acres / 182,729 to 195,349 units

Sources: Caltrans, SACOG, County of Sacramento, Sacramento Transportation Authority, City of Sacramento, City of Folsom, and the City of Rancho Cordova

Table 2.18-2. Programmed Transportation Projects, 2006-2015

<i>Project</i>	<i>Jurisdiction</i>	<i>Route</i>
Interstate 5 Projects		
I-5 Interchange Enhancements	Sacramento	I-5
I-5 Road Widening	Sacramento	I-5
I-5 Bus/carpool Lanes (1)	Sacramento County	I-5
I-5 Rehabilitation	Sacramento County	I-5
I-5/SR 99/US 50 Connector	Sacramento County, Rancho Cordova, Folsom	I-5
SR 99-I-5 Intersection	Sacramento County	I-5
Interstate 80 Projects		
I-80 Bus/carpool Lanes (2)	Placer County	I-80
I-80 Interchange Enhancements	Sacramento	I-80
I-80 Bus/carpool Lanes (1)	Sacramento County	I-80
State Route 99 Projects		
SR 99-Sheldon Road Interchange	Elk Grove	SR 99
I-5/SR 99/US 50 Connector	Sacramento County, Rancho Cordova, Folsom	SR 99
US 50 Projects		
I-5/SR 99/US 50 Connector	Sacramento County, Rancho Cordova, Folsom	US 50
US 50 Bus/carpool Lanes (1)	El Dorado County	US 50
US 50 Interchanges	El Dorado County	US 50
US 50 Interchanges	Folsom	US 50
US 50-Mather Field Rd Interchange	Rancho Cordova	US 50
US 50 Bus/carpool Lanes (2)—the Project	Sacramento County	US 50
US 50 Connection	Sacramento County	US 50
US 50-Watt Ave Interchange	Sacramento County	US 50
US 50 Rehabilitation	Sacramento, Yolo County	US 50
US 50-Jefferson Blvd Interchange	West Sacramento	US 50
US 50-Harbor Blvd Interchange	Yolo County	US 50
Other Road and Highway Projects		
District 3 Traffic Operations System Projects	Caltrans District 3	
Zinfandel Drive to Douglas Road Extension	Rancho Cordova	
65th Street Improvements	Sacramento	
Consumes River Blvd Extension	Sacramento	
Intermodal Transportation Facility	Sacramento	
North Downtown Access	Sacramento	
Power Inn Road Widening	Sacramento	
Ramona Avenue	Sacramento	
Extend International Drive to Sunrise Blvd	Sacramento County	
Folsom Blvd and Watt Ave	Sacramento County	
Hazel Ave Widening	Sacramento County	
Watt Ave/S. Watt Ave Enhancements	Sacramento County	
Bradshaw Road Enhancements	Sacramento County, City of Elk Grove	
Sunrise Blvd Enhancements	Sacramento County, Rancho Cordova	
Folsom Blvd Widening and Enhancements	Sacramento County, Sacramento, Rancho Cordova	

Source: SACOG, Sacramento Transportation Authority



LEGEND

— Environmental Study Limits

Noise Measurement Sites:

● Field

● Measured

----- Evaluated Sound Wall

FIGURE 2.1-1a
Environmental Resources

03-Sac-50
 US 50 HOV Lanes and Community
 Enhancements Project
 PM L1.4/20.7 (KP L0.9/12.5)
 EA 03-44161

State of California
 Department of Transportation





LEGEND

- Environmental Study Limits
- Noise Measurement Sites:
 - Field
 - Measured
- Existing Sound Wall
- - - Proposed Sound Wall
- Evaluated Sound Wall
- Hazardous Waste Site

FIGURE 2.1-1b
Environmental Resources

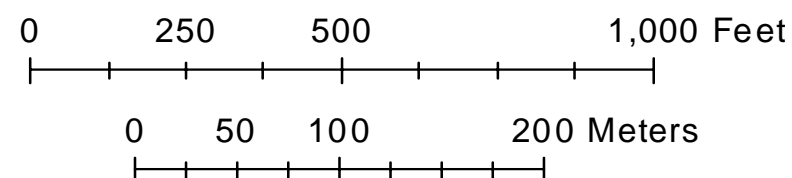
03-Sac-50
 US 50 HOV Lanes and Community
 Enhancements Project
 PM L1.4/20.7 (KP L0.9/12.5)
 EA 03-44161

State of California
 Department of Transportation









LEGEND

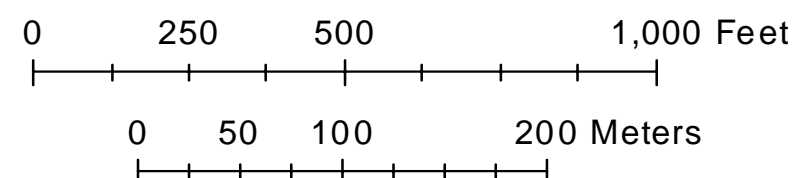
- Environmental Study Limits
- Noise Measurement Sites:
 - Field
 - Measured
- Existing Sound Wall
- - Proposed Sound Wall
- Hazardous Waste Site

FIGURE 2.1-1e
Environmental Resources

03-Sac-50
US 50 HOV Lanes and Community
Enhancements Project
PM L1.4/20.7 (KP L0.9/12.5)
EA 03-44161

State of California
Department of Transportation





LEGEND

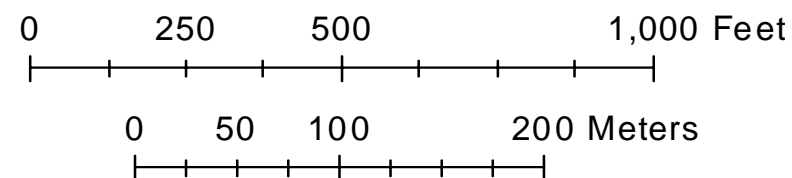
- Environmental Study Limits
- Air Receptor Sites
- Noise Measurement Sites:
 - Field
 - Measured
- Existing Sound Wall

FIGURE 2.1-1f
Environmental Resources

03-Sac-50
US 50 HOV Lanes and Community
Enhancements Project
PM L1.4/20.7 (KP L0.9/12.5)
EA 03-44161

State of California
Department of Transportation





LEGEND

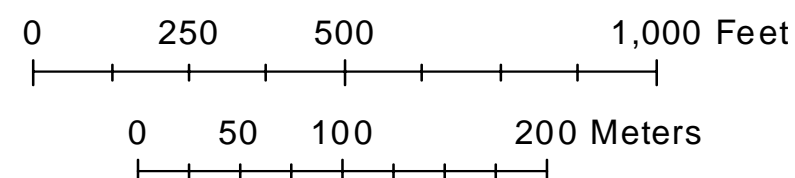
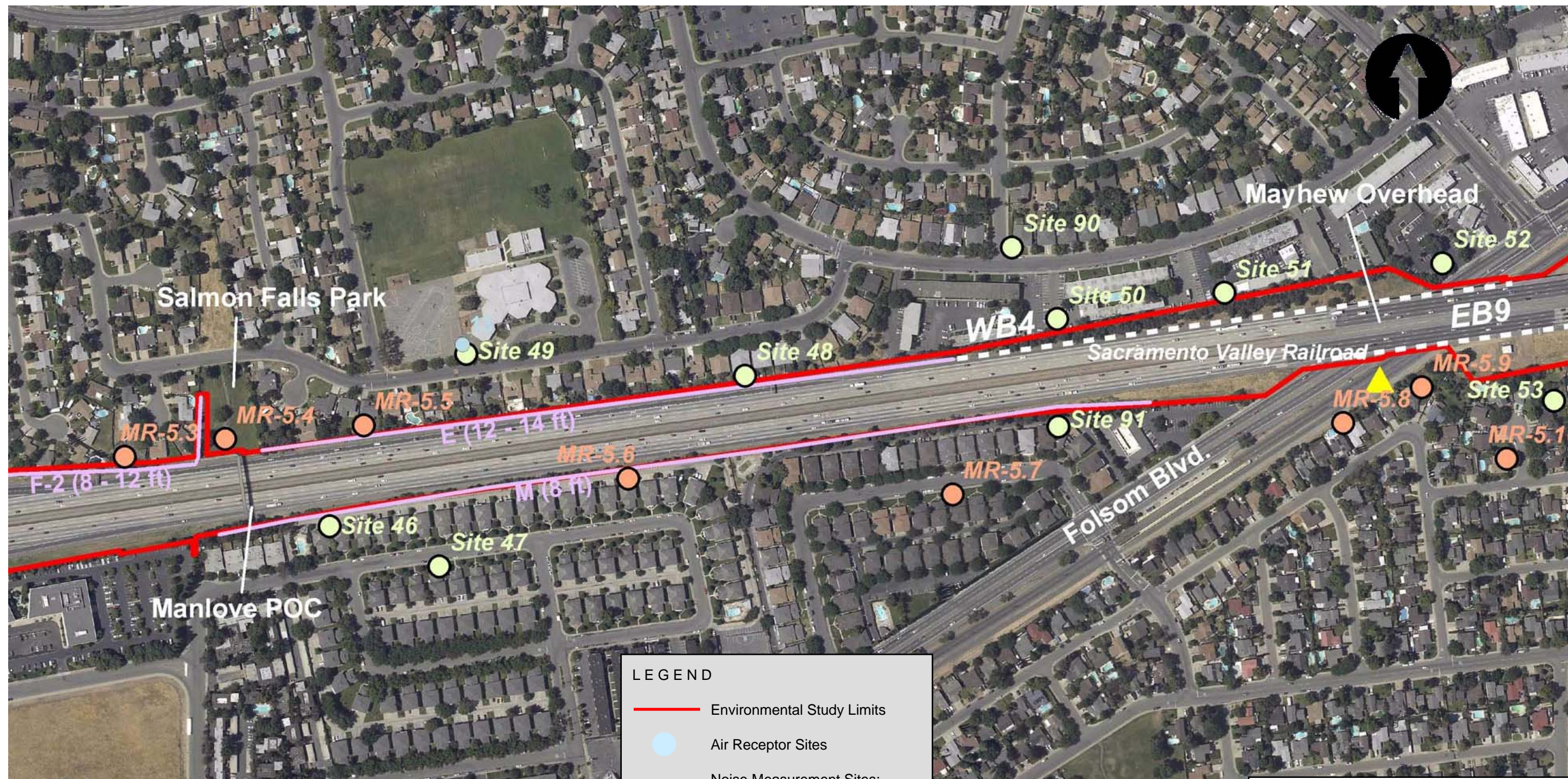
- Environmental Study Limits
- Air Receptor Sites
- Noise Measurement Sites:
 - Field
 - Measured
- Existing Sound Wall

FIGURE 2.1-1g
Environmental Resources

03-Sac-50
US 50 HOV Lanes and Community
Enhancements Project
PM L1.4/20.7 (KP L0.9/12.5)
EA 03-44161

State of California
Department of Transportation





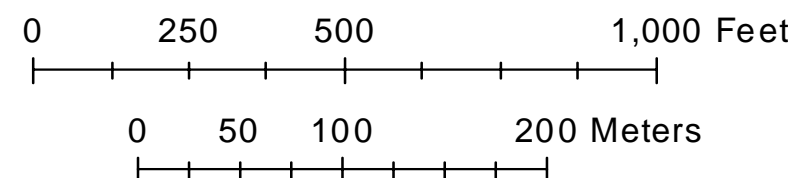
LEGEND	
—	Environmental Study Limits
●	Air Receptor Sites
Noise Measurement Sites:	
●	Field
●	Measured
—	Existing Sound Wall
—	Proposed Sound Wall
▲	Cultural Resource

FIGURE 2.1-1h
Environmental Resources

03-Sac-50
US 50 HOV Lanes and Community
Enhancements Project
PM L1.4/20.7 (KP L0.9/12.5)
EA 03-44161

State of California
Department of Transportation





LEGEND

- Environmental Study Limits
- Air Receptor Sites
- Noise Measurement Sites:
 - Field
 - Measured
- Existing Sound Wall
- - - Proposed Sound Wall

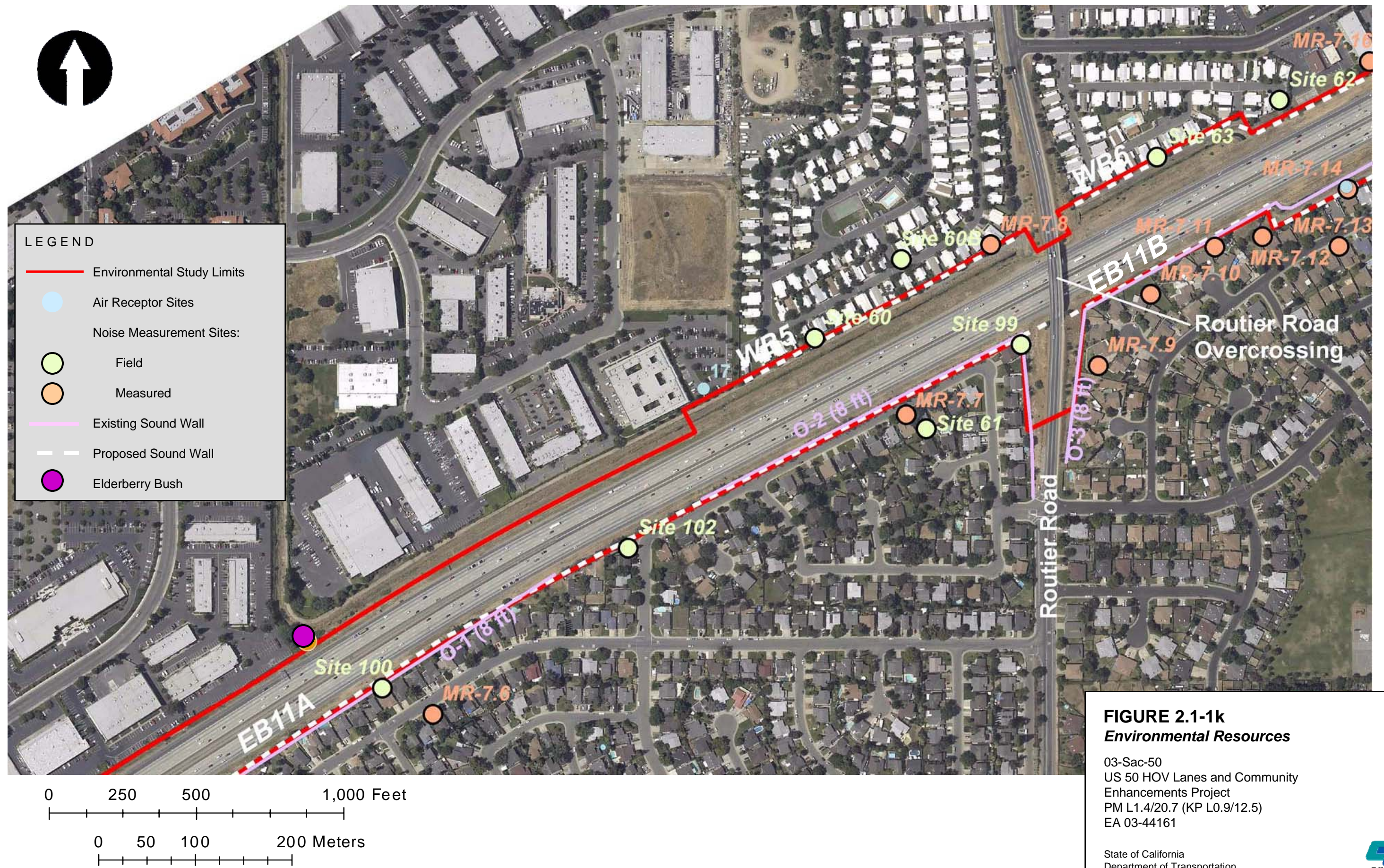
FIGURE 2.1-1i
Environmental Resources

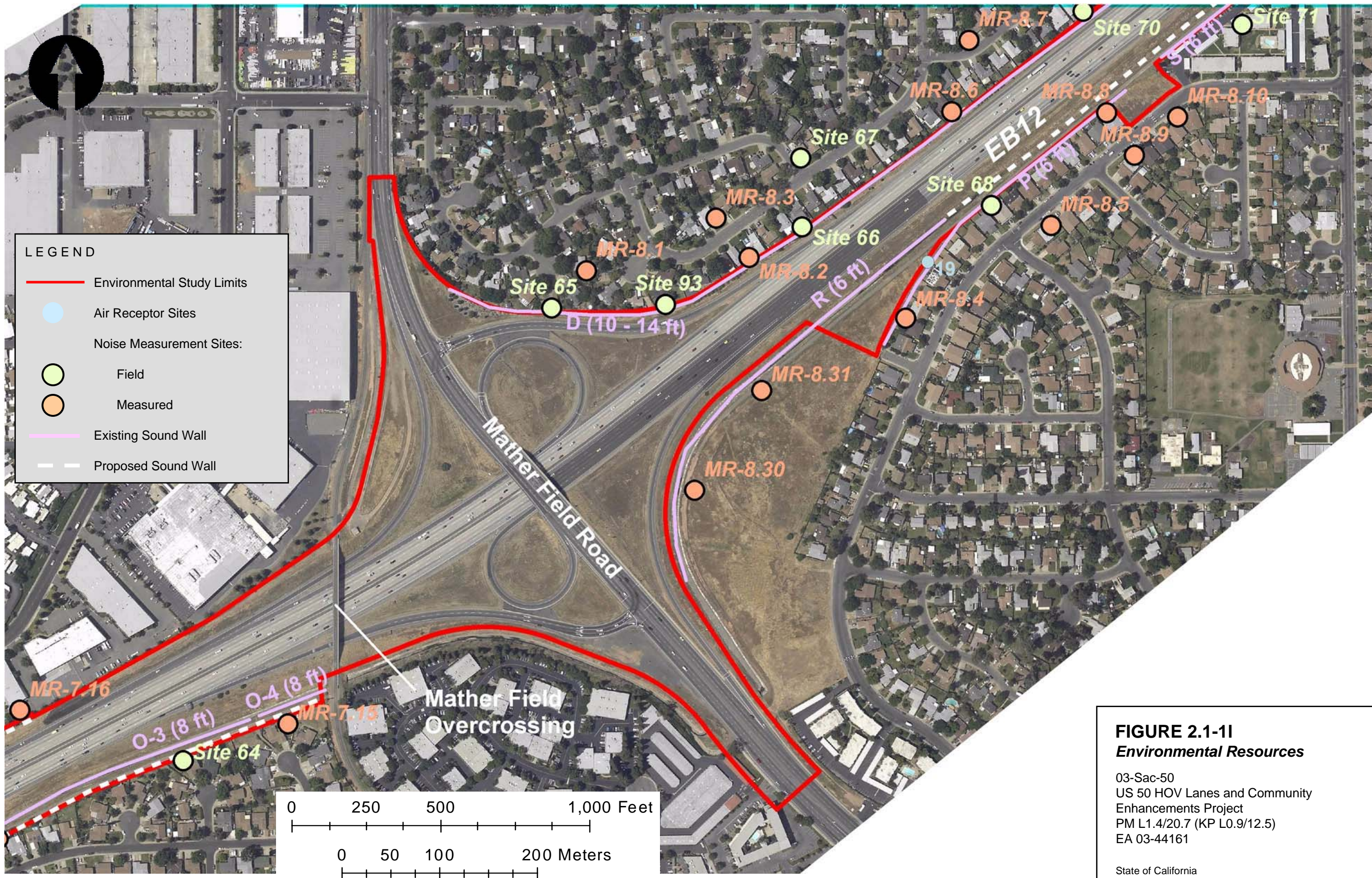
03-Sac-50
US 50 HOV Lanes and Community
Enhancements Project
PM L1.4/20.7 (KP L0.9/12.5)
EA 03-44161

State of California
Department of Transportation









LEGEND

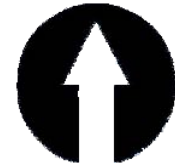
- Environmental Study Limits
- Air Receptor Sites
- Noise Measurement Sites:
 - Field
 - Measured
- Existing Sound Wall
- Proposed Sound Wall

FIGURE 2.1-11
Environmental Resources

03-Sac-50
 US 50 HOV Lanes and Community
 Enhancements Project
 PM L1.4/20.7 (KP L0.9/12.5)
 EA 03-44161

State of California
 Department of Transportation





LEGEND

- Environmental Study Limits
- Air Receptor Sites
- Noise Measurement Sites:
 - Field
 - Measured
- Existing Sound Wall
- - - Proposed Sound Wall



FIGURE 2.1-1m
Environmental Resources

03-Sac-50
US 50 HOV Lanes and Community
Enhancements Project
PM L1.4/20.7 (KP L0.9/12.5)
EA 03-44161

State of California
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FIGURE 2.1-1n
Environmental Resources

03-Sac-50
 US 50 HOV Lanes and Community
 Enhancements Project
 PM L1.4/20.7 (KP L0.9/12.5)
 EA 03-44161

State of California
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FIGURE 2.1-10
Environmental Resources

03-Sac-50
 US 50 HOV Lanes and Community
 Enhancements Project
 PM L1.4/20.7 (KP L0.9/12.5)
 EA 03-44161

State of California
 Department of Transportation





CHAPTER 3 – CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EVALUATION

3.1 DETERMINING SIGNIFICANCE UNDER CEQA

The proposed project is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. Caltrans is the lead agency under CEQA and the FHWA is lead agency under NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or some lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a *whole* has the potential to “significantly affect the quality of the human environment.” The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents. CEQA, on the other hand, does require Caltrans to identify each “significant effect on the environment” resulting from the project and ways to reduce each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines Appendix G list a number of mandatory findings of significance, which also require the preparation of an EIR. For the purpose of this document pertinent criteria from the CEQA Guidelines Appendix G were used to establish significance criteria for each of the alternatives. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 DISCUSSION OF SIGNIFICANT IMPACTS

The CEQA checklist (Appendix A of this document) identifies physical, biological, social, and economic factors that might be affected by the proposed project. The CEQA impact levels include potentially significant impact, less than significant impact with mitigation, less than significant impact, and no impact. Please refer to Title 14, Chapter 3, California Code of Regulations, Sections 15000 et seq for detailed discussions regarding impacts. CEQA requires that environmental documents determine significant or potentially significant impacts. In many cases, background studies performed in connection with the project indicate no impacts. A “no impact” reflects this determination. Any needed discussion to address resource specific impacts is in the corresponding Chapter 2 section of this EIR/EA. The analysis for the draft EIR that you are reading, for the proposed bus/carpool lanes project, supports the conclusion that the project would not have unavoidable significant environmental impacts.

3.3 MITIGATION MEASURES FOR SIGNIFICANT IMPACTS UNDER CEQA

Biological Resources

Migratory Birds/Raptors

In order to reduce any potential impacts to white-throated swifts and Purple Martins, a pre-construction survey will be completed and weep holes in bridges plugged/covered before project work commences. It is anticipated swallows and Purple Martins may try to nest on bridge structures during the nesting season (March 1st to September 1st). The contractor will take measures as necessary to prevent nesting on portions of the structures that will cause conflict between performing necessary work and nesting Purple Martins and swallows. If at all possible, work will be performed outside of nesting season in order to avoid nesting birds.

Prior to March 1st, exclusionary devices such as wire mesh will be used to block access to nesting sites where work will be performed and left in place until work is completed. If nesting areas cannot be

excluded, daily removal of partially completed nests is permitted between March 1st and August 31st to discourage nesting. If new nests are built, or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted.

Caltrans recommends that the removal of any woody vegetation (trees and shrubs) required for the project is completed between September 1st and February 1st, outside of the predicted nesting season for raptors and migratory birds in this area. Vegetation removal outside this time period may not proceed until a survey by a qualified biologist determines no nests are present or in use.

If woody vegetation removal, construction, grading, or other project-related improvements are scheduled during the nesting season of protected raptors and migratory birds (February 15th to September 1st), a focused survey for active nests of such birds will be conducted by a qualified biologist within two weeks prior to the beginning of project-related activities. If active nests are found, Caltrans will consult with USFWS regarding appropriate action to comply with the Migratory Bird Treaty Act of 1918 and with CDFG to comply with provisions of the Fish and Game Code of California. If a lapse in project related work of two weeks or longer occurs, another survey and, if required, consultation with USFWS and CDFG will be required before the work can be reinitiated.

Please refer to Chapter 2.17 for more detailed information regarding avoidance, minimization, and mitigation measures.

Bats

The contractor will take such measures as necessary to prevent disturbing portions of the bridge structure that will cause conflict between performing necessary work and roosting bats. If contractor work does not conflict with bat roosting, then no further measures are required.

If work interfering with known bat roosts or potential bat roosting structures is proposed to occur between March 1st and October 31st, exclusionary devices such as wire mesh will be used to block access to bat roosting sites in expansion joints near where work will be performed. Under the direction of a biologist, the exclusionary devices will be installed after October 31st, but before March 1st, and left in place until work is completed, and then removed to allow the return of roosting bats.

An optional measure is to install, prior to March 1st, a temporary bat roost ("bat box") near the bridge structure to discourage the use of more marginal day roost sites on the structure. If the contractor's work on the bridge structure occurs between November 1st and February 28th, then no further measures are required. Please refer to Chapter 2.17 for more detailed information regarding avoidance, minimization, and mitigation measures.

Paleontological Resources

Caltrans recommends monitoring where excavation or road cuts will disturb fossil-bearing sedimentary strata. The goal of monitoring is to reduce the adverse impact on paleontological resources within the project area by collecting scientifically significant vertebrate fossils. The contractor undertaking monitoring will adhere to the paleontological mitigation plan that detail the procedures for collecting vertebrate fossils, including recording pertinent geographic and stratigraphic information, stabilization (preservation) methods for the specimens, and make provisions for the remains to be accessioned into the collections of an appropriate repository, and catalogued for future scientific study. Following completion of monitoring, collection, and specimen processing, the contractor should generate a final report detailing the results of the mitigation program. A paleontological mitigation plan for the project was prepared in November 2004. Please refer to Chapter 2.10 for more detailed information regarding avoidance, minimization, and mitigation measures.

CHAPTER 4 – SUMMARY OF PUBLIC INVOLVEMENT AND TRIBAL COORDINATION

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including: project development team meetings, interagency coordination meetings, public open houses, workshops, and meetings with community groups. This chapter summarizes the results of the Caltrans' efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

4.1 PUBLIC INVOLVEMENT

4.1.1 Notice of Preparation

On June 2, 2005, a Notice of Preparation (NOP) was published and distributed to the public and agencies regarding the preparation of the DEIR. Approximately 34 agencies were sent copies of the NOP. A further 38 agencies and organizations were sent a notice regarding the availability of the NOP, along with approximately 64,000 adjacent residents.

4.1.2 Notice of Preparation Open House/Scoping Meetings

Besides the notice sent to agencies and adjacent residents, a notice of three public open house/scoping meetings appeared in several local Sacramento Bee Neighbors sections. These open house/scoping meetings were held at the following locations:

- Sacramento Central Library, June 21, 2005 (10 AM – 2 PM and 4 PM - 7 PM)
- Mills Station Community Room, June 23rd (4 PM – 7 PM)

Approximately 75 individuals attended these open house/scoping meetings.

In addition, there were several meetings with individual organizations, including:

- Neighborhood Alliance (July 18, 2005)
- Environmental Council of Sacramento (Aug. 3, 2005)
- Elmhurst Neighborhood Association (Aug. 10, 2005)
- Land Park Community Association (Aug 8, 2005)

4.1.3 Other Workshops, Open Houses, and Public Meetings

- The Sacramento Area Council of Governments (SACOG) held public workshops, which were widely noticed using SACOG mailing lists and newsletter, at their office on June 12, in Rancho Cordova on July 15, and in Folsom on July 16, 1997, to discuss the proposed project.
- Major Investment Study (MIS)
 - The MIS included a number of initiatives designed to maintain mobility and provide travel choices along US 50. The addition of HOV lanes between Sacramento and El Dorado Hills was one of the initiatives.
 - The MIS was produced after a four-year regional discussion and consensus building process that involved various local agencies and the public. As part of the related US 50 Corridor Major Investment Study (MIS), SACOG conducted a public outreach program consisting of public forums, open houses, and presentations to groups. These included:
 - Sacramento Central City Transportation Management Association General Meeting (September 11, 1996)
 - Folsom-El Dorado-Cordova Transportation Management Association Board (October 8, 1996)

- Power Inn Transportation Management Association Board (October 9, 1996)
 - Central City Association of Neighborhoods (October 12, 1996)
 - Folsom-El Dorado-Cordova Transportation Management Association General Meeting (October 16, 1996)
 - Open House at SACOG (October 23, 1996)
 - Public Forum, Hart Senior Center (October 26, 1996)
 - Public Forum, Cordova Senior Center (October 29, 1996)
 - Environmental Council of Sacramento (ECOS) Board (November 6, 1996)
 - Public Forum, Folsom Steak House (November 6, 1996)
 - Franchise Tax Board Employees (November 7, 1996)
 - Cordova Community Planning Advisory Council (November 14, 1996)
 - Forum on a Long-Range Investment Strategy for the US 50 Corridor at SACOG (June 18, 1997)
- The SACOG Board adopted the MIS in December 1997.
- Metropolitan Transportation Plan 2025 (MTP):
 - The MTP process began in Nov. 1999 with a forum co-sponsored by SACOG and Valley Vision, "Traveling Into the Future." Public participation activities included:
 - Transportation Roundtable, 55 community leaders meeting for 2 ½ years.
 - Town meetings (5) in January and February 2000.
 - January to March 2002, public meetings for the Preliminary Draft MTP. A video was shown at 90 meetings.
 - A telephone poll was conducted on the Preliminary Plan after the meetings.
- Community Consensus Building
 - Began in the spring of 2000 and completed in the summer of 2000.
 - The public outreach and education process involved the following five approaches:
 - Individual meetings with stakeholders and interested parties;
 - One-on-one briefings for local elected public officials and their staff;
 - Four public workshops in areas affected by project;
 - Presentations at the June 19, 2000 Neighborhood Advisory Group meeting and the June 14, 2000 Watt Avenue workshop;
 - An interactive web site.
 - Caltrans produced a final report in September 2000.
- Presentations to various local agencies and boards
 - Presentation to the Project Steering Committee with representatives from SACOG, City of Sacramento, County of Sacramento, Regional Transit, Sacramento Transportation Authority (STA), and Caltrans on September 9, 2002.
 - Presentation to the STA board on September 12, 2002.
 - Presentation to the Sacramento City Council on February 10, 2003.
- Corridor Advisory Committee (CAC)
 - In the fall of 2002, Caltrans conducted outreach to notify the community of the CAC's formation and to encourage people who live, work or commute along the corridor, or who represent organizations with an interest in the corridor, to apply to serve on the CAC. Eighteen individuals with various backgrounds and interests were selected.
 - The CAC met monthly from January to October 2003 (there was no meeting in April).
 - The CAC offered feedback and comments on the pros and cons of each alternative, made recommendations for potential community enhancements, and identified additional alternatives to be considered in the environmental document.
 - A final report was published in November 2003.

- Meetings after the NOP
 - Land Park Community Association (Aug. 15 and Sept. 21, 2005)
 - Aug. 15th meeting discussed noise study and noise issues
 - Sept. 21st meeting discussed traffic studies.
 - Sacramento City Council (Nov. 1, 2005)
- Sacramento City Council meetings
 - The project was originally presented to the Sacramento City Council on July 24, 2001. A resolution authorized the City Manager to submit a joint application with Caltrans and the County of Sacramento to the Sacramento Transportation Authority for STIP funding for the Project. City staff recommended adoption; the Council denied staff recommendation (8 to 1)
 - On Nov. 1, 2005, City staff recommended public outreach to develop a list of community enhancements that the City will request be included as part of the project. The Council directed staff to return with a multiple strategy approach that includes community outreach options, other possible alternatives, the feasibility of additional conversations with Caltrans, and including alternatives to the HOV lanes in the EIR.
 - On April 4, 2006, the City Council passed Resolution No. 2006-237 which:
 - Reaffirmed opposition to the project.
 - Included a list of prioritized community enhancements that the City requests be included as part of the project.
 - Directed City staff to respond to Caltrans Jan. 9, 2006 letter requesting a list of community enhancements.
 - Requested an extension of the draft environmental document review period to 90 days.
 - Directed City Staff to work with Caltrans and SACOG to conduct a public charette meeting.
- Other agencies
 - On July 16, 2006, Caltrans met with the Sacramento Metropolitan Air Quality Management District (SMAQMD) to discuss potential construction emissions rules. SMAQMD indicated that such rules would be approved by the spring of 2007.

4.2 TRIBAL COORDINATION

The following agencies, tribes, groups, and individuals were contacted for this project:

Agencies:

- California Office of Historic Preservation
- Native American Heritage Commission

Tribes:

- Lone Band of Miwok Indians
- Shingle Springs Band of Miwok Indians
- Nashville-El Dorado Miwok
- Sierra Native American Council
- Miwok Tribe of the El Dorado Rancheria
- Wilton Rancheria
- United Auburn Indian Community of the Auburn Rancheria

Individuals:

- Billie Blue Elliston
- Rose Enos
- Randy Yonemura

CHAPTER 5 - LIST OF PREPARERS

The following Caltrans staff and consultants contributed to the preparation of this DEIR/EA:

5.1 CALTRANS STAFF

Jeremy Ketchum, Senior Environmental Planner; BS Environmental Policy Analysis and Planning, University of California at Davis; MS Transportation Management, San Jose State University; 7 years experience performing environmental studies and document preparation. Environmental document oversight.

Ken Lastufka, Associate Environmental Planner; BA Environmental Studies, California State University, Sacramento (CSUS); MA Urban Studies, CSUS, Sacramento; 21 years experience performing environmental studies and document preparation. Environmental document preparation.

Mike Auslam, Traffic Engineer; BS Construction Engineering; 22 years experience. Traffic Study Report.

Aaron Bennett, NPDES Coordinator; BS Environmental Engineering, Utah State University; MS Environmental Engineering, University of California at Berkeley; Licensed Professional Engineer in California since 2001. Water Quality Assessment.

Rajive Chadha, Environmental Engineer, B.A.Sc. Civil Engineering, University of Ottawa, 15 years of experience performing hazardous waste studies/investigations. Initial Site Investigation.

Trina-Dee Florence, Senior Delineator; 30 years experience performing hand and CAD drafted plan sets graphic design, and visual simulations. Visual simulations.

Marsha Freese, Associate Landscape Architect; BS Landscape Architecture, Iowa State University, Ames; MBA, University of Phoenix, Fountain Valley; 8 years experience in preparing visual impact assessments. Visual Impact Assessment.

John Holder, Professional Engineer, Project Management Professional, National Pollutant Discharge Elimination System Coordinator, BS Civil Engineering, California State University, Sacramento, 8 1/2 years experience Design, 5 1/2 years experience water quality assessment and compliance document preparation. Water Quality Report.

Andrew Hope, Associate Environmental Planner (Architectural History); BS Architecture, University of Michigan; MA Architecture, University of Wisconsin - Milwaukee; 18 years experience in historic preservation and historic architecture surveys. Historic Resource Evaluation Report and Finding of No Adverse Effect Report.

Judy McCullough, Hydraulic Engineer, MS Civil Engineering, California State University, San Jose CA, USA; 5 years experience performing hydraulic engineering. Floodplain study.

Aaron McKeon, Associate Environmental Planner; MS Regional Planning, Cornell University; 5 years experience in preparing community impact assessments. Community Impact Analysis.

Anmarie Medin, Associate Environmental Planner - Archaeologist. MA, Cultural Resources Management, Sonoma State University. 16 years experience performing cultural resources assessments and environmental compliance documents. Professionally Qualified Staff: PI - Historical Archaeology; Co-PI - Prehistoric Archaeology. Cultural resources compliance documents.

Richard Olson, Associate Environmental Planner, Archaeologist; BA History/American Studies, California State University, Chico; 26 years experience in archaeology/cultural resource management. Mr. Olson is a Professionally Qualified Staff (PQS) certified by Caltrans as a Co-Principal Investigator in Prehistoric and Historical Archaeology. Historic Property Survey Report.

Erik Schwab, Associate Environmental Planner - Natural Resources; AS Forestry, Sierra College; BS Agronomy, Production Management, CSU, Fresno; 16 years experience conducting biological studies and environmental analysis. Natural Environment Study.

Ben Tam, Transportation Engineer; BS Civil Engineering, San Jose State University; 14 years experience with 7 years experience performing noise studies. Noise Study oversight.

Sharon Tang, Transportation Engineer Technician (Air/Noise); AA Business/Engineering, Sacramento City College; 4 years experience. Air Quality Report.

5.2 URS CORPORATION

Jeff Zimmerman, Senior Project Manager; BS Conservation of Natural Resources, University of California, Berkeley; Over 22 years of experience providing NEPA and CEQA compliance procedures, documentation, and regulatory permitting.

Manisha Kothari, Project Manager/Senior Environmental Planner; MS Foreign Service, Georgetown University, Washington, DC; BA Political Science, BA Communications, University of California, Berkeley; 8 years of experience in the planning and analysis of infrastructure development projects in California and overseas, with emphasis on the evaluation of community and socioeconomic impacts.

Keith Dewey, Project Manager/Senior Planner; BA Geography, University of Missouri, Columbia; Certificate, Land Use & Environmental Planning, University of California, Davis; 12 years experience performing transportation/environmental studies and environmental document preparation.

Mark Mazzola, Environmental Planner; BS Biology, University of Notre Dame, South Bend; MS Community and Regional Planning, University of Texas, Austin; 10 years of experience in international and federal environmental programs and planning.

Srijesh Thapa, Associate Environmental Planner; B.S. Environmental Science, Delhi University, India; M.S. Environmental Management, University of San Francisco; 8 years of experience in the environmental field.

5.3 ILLINGWORTH RODKIN

Keith Pommerick, Senior Consultant. Traffic noise measurements, traffic noise modeling tasks, and report preparation.

5.4 GEOCON CONSULTANTS, INC.

Rebecca L. Silva, Senior Project Scientist; BS Soil and Water Science, University of California at Davis, 14 years experience performing environmental assessments.

CHAPTER 6 - DISTRIBUTION LIST

Federal Agencies

FHWA
Leland Dong
650 Capitol Mall, Suite 4-100
Sacramento, California 95814

US Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, California 95825

State Agencies

Office of Historic Preservation
California Dept. of Parks and Recreation
1416 9th Street, Room 1442-7
Sacramento, CA 95814

Central Valley Regional Water Quality Control
Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

California Department of Fish and Game
1416 Ninth Street
Sacramento, California 95814

Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296

California Highway Patrol
P. O. Box 942898
Sacramento, California 94298-0001

Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

California Transportation Commission
1120 N Street
Room 2221 (MS-52)
Sacramento, CA 95814

Local Agencies

City of Sacramento
City Clerk
730 I Street, Room 211
Sacramento, CA 95814

Sacramento County
Clerk of the Board
700 H Street, Suite 2450
Sacramento, CA 95814

City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

City of Folsom
50 Natoma Street
Folsom, CA 95630-2696

City of West Sacramento
1110 West Capitol Avenue
P.O. Box 966
West Sacramento, CA 95691

Yolo County
P.O. Box 1130
Woodland, CA 95776

El Dorado County
330 Fair Lane
Placerville, CA 95667

Sacramento Air Quality Management District
777 12th Street, 3rd Floor
Sacramento, CA 95814

Yolo – Solano Air Pollution Quality
Management District
1947 Galileo Court, Suite 103
Davis, CA 95616

Sacramento Regional Transit
P.O. Box 2110
Sacramento, CA 95812-2110

El Dorado County Transit Authority
2828 Easy Street, Suite 1
Placerville, CA 95667

Sacramento Transportation Authority
901 F Street, Suite 210
Sacramento, California 95814-0730

El Dorado County Transportation Commission
550 Main Street, Suite C
Placerville, CA 95667

Yolo County Transportation District
350 Industrial Way
Woodland CA 95776

Paratransit
2501 Florin Road
Sacramento, CA 95822

SACOG
1415 L Street, Suite 300
Sacramento, CA 95814

Sacramento Housing and Redevelopment
Agency
630 I Street
Sacramento, CA 95814

Sacramento Metropolitan Chamber of
Commerce
917 Seventh Street
Sacramento, CA 95814

California State University, Sacramento
6000 J Street
Sacramento, CA 95819

Los Rios Community College District
1919 Spanos Ct.
Sacramento, CA 95825

Sacramento City Unified School District
Serna Center
5735 47th Avenue
Sacramento, CA 95824

San Juan Unified School District
3738 Walnut Ave.
Carmichael, CA 95608

Folsom Cordova Unified School District
125 E Bidwell St.
Folsom, CA 95630

Sacramento Sheriff's Department
711 G Street
Sacramento, CA 95814

Sacramento City Police Department
5770 Freeport Blvd, Ste 100
Sacramento, CA 95822

Sacramento City Fire Department
5770 Freeport Blvd., Suite 200
Sacramento, CA 95822

Sacramento Metro Fire District
2101 Hurley Way
Sacramento, CA 95825

Cordova Recreation and Park District
2197 Chase Drive
Rancho Cordova, CA 95670

Arden Cordova Water District
11088 Olson Drive, Suite D
Rancho Cordova, CA 95670-5650

Pacific Gas and Electric
8303 Sierra College Blvd.
Roseville, CA 95661

SBC
3707 Kings Way # B15
Sacramento, CA 95821

Mather Airport
3745 Whitehead St.
Sacramento, CA 95655

UC Davis Medical Center
2315 Stockton Blvd., Suite 4200
Sacramento, CA 95817

Sutter Health
2200 River Plaza Drive
Sacramento, CA 95833

Mercy Hospital
4001 J St
Sacramento, CA 95819

Federal Elected Officials

House of Representatives
Doris Matsui
12-600 Federal Courthouse
501 I Street
Sacramento, CA 95814

Dan Lungren
11246 Gold Express Drive, Suite 101
Gold River, CA 95670

Senate
Barbara Boxer
501 I Street, Suite 7-600
Sacramento, CA 95814

Diane Feinstein
One Post Street, Suite 2450
San Francisco, CA 94104

State Elected Officials

State Assembly
Dave Jones – District 9
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0000

Roger Niello – District 5
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0000

Alan Nakanishi – District 10
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0000

Lois Wolk – District 8
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0000

State Senate
Deborah Ortiz – District 6
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0000

Michael Machado – District 5
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0000

Dave Cox – District 1
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0000

Local Elected Officials

Sacramento City Council
Mayor Heather Fargo
City Hall
730 I Street, Suite 321
Sacramento, CA 95814

City Council
City Hall
730 I Street, Suite 321
Sacramento, CA 95814

Sacramento County Board of Supervisors
700 H Street, Suite 2450
Sacramento, CA 95814

Rancho Cordova City Council
Mayor Robert J. McGarvey
2729 Prospect Park Drive
Rancho Cordova, CA 95670

City Council
2729 Prospect Park Drive
Rancho Cordova, CA 95670

CHAPTER 7 - REFERENCES

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US Bureau of the Census

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APPENDICES:

APPENDIX A: CEQA CHECKLIST

APPENDIX B: TITLE VI POLICY STATEMENT

**APPENDIX C: RESOURCES EVALUATED RELATIVE TO THE REQUIREMENTS OF
SECTION 4(F)**

APPENDIX D: CONCURRENCE LETTERS FROM SHPO

APPENDIX E: GLOSSARY OF TECHNICAL TERMS

APPENDIX F: MINIMIZATION AND/OR MITIGATION SUMMARY

APPENDIX G: LIST OF ACRONYMS

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APPENDIX I: TRAFFIC VOLUME TABLES

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APPENDIX A: CEQA CHECKLIST

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts.

Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this Environmental Impact Report/Environmental Assessment. Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<p>III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</p>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>IV. BIOLOGICAL RESOURCES -- Would the project:</p>				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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VII. HAZARDS AND HAZARDOUS MATERIALS –

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VIII. HYDROLOGY AND WATER QUALITY -- Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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XI. NOISE –

Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. POPULATION AND HOUSING -- Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
XIV. RECREATION –				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVI. UTILITIES AND SERVICE SYSTEMS –				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. MANDATORY FINDINGS OF SIGNIFICANCE –				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPENDIX B: TITLE VI POLICY STATEMENT

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR

1120 N STREET

P. O. BOX 942873

SACRAMENTO, CA 94273-0001

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*Flex your power!
Be energy efficient!*

January 14, 2005

TITLE VI POLICY STATEMENT

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in black ink that reads 'Will Kempton'.

WILL KEMPTON

Director

APPENDIX C: RESOURCES EVALUATED RELATIVE TO THE REQUIREMENTS OF SECTION 4(F)

Section 4(f) of the U.S. Department of Transportation Act of 1966, codified in Federal law at 49 USC 303, declares that “[i]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that “[t]he Secretary [of Transportation] may approve a transportation program or project ... requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of a historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if:

1. there is no feasible and prudent alternative to using that land; and
2. the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.”

Section 4(f) further requires consultation with the Department of the Interior, and as appropriate, the involved offices of the Departments of Agriculture and Housing and Urban Development in developing transportation projects and programs which use lands protected by section 4(f). In general, a section 4(f) “use” occurs with a project or program, approved by the Department of Transportation, (1) when section 4(f) land is permanently incorporated into a transportation facility; (2) when there is a temporary occupancy of section 4(f) land that is adverse, in terms of the section 4(f) preservationist purposes as determined by specific criteria (23 CFR 771.135 [p] [7]); and (3) when section 4(f) land is not incorporated into the transportation project, but the project’s proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under section 4(f) are substantially impaired (constructive use) (23 CFR 771.135 [p] [1] and [2]).

Proposed Action

The project proposes the addition of bus/carpool lanes in the existing median of United States Highway 50 (US 50) from Sunrise Boulevard to downtown Sacramento. Two build alternatives are evaluated in the Environmental Impact Report / Environmental Assessment prepared for this project.

The capacity increase is being proposed to improve mobility on US 50, provide an option for reliable peak period travel time, and to provide an incentive for commuters to use carpools, vanpools, or buses for peak period travel.

Description of Parks

There are twenty publicly-owned parks in the community impact study area for the proposed project (defined as the Census Tracts within a half mile of US 50 within the project’s limits). Of these, five are adjacent to the proposed project and have the potential to be affected by project activities.

Parks in the City of Sacramento

Coloma Park: Coloma Park, located on T Street south of US 50, is a three-acre park that includes a community center, basketball courts, and a play area.

Oki Park: Oki Park is located south of US 50 on Wissemann Drive, is 14 acres, and includes a swimming pool, picnic areas, basketball courts, and soccer fields.

Glenbrook Park: Glenbrook Park is located on La Rivera Drive north of US 50, is approximately 19 acres, and includes picnic areas, a ball field, soccer fields, tennis courts, and play areas.

Rancho Cordova / Cordova Recreation and Park District

White Rock Park: White Rock Park is located adjacent to US 50 at 10488 White Rock Road, encompasses 12 acres, and includes a swimming pool, tennis courts, picnic areas, basketball courts, and play areas. The White Rock Pedestrian Overcrossing allows access to the park from neighborhoods located to the south.

Salmon Falls Park: Salmon Falls Park is located east of Watt Avenue, is approximately ¼ acre in size and consists of a picnic area and play structure. The Manlove POC provides access to the park from the south side of US 50.

Impacts on Section 4(f) Properties

Recreation Areas in the City of Sacramento

The proposed project would not require the acquisition of any City owned property designated for recreational use. The project would add bus/carpool lanes to the freeway's median and would, therefore, be unlikely to adversely affect the existing noise or visual environment in the vicinity of any parks.

Recreation Areas in the Cordova Recreation and Park District

The proposed project would not require the acquisition of land from any parks in the Cordova Recreation and Park District.

The proposed project would require temporary occupancy of White Rock Park and Salmon Falls Park for the demolition and reconstruction of the pedestrian overcrossing (POC) structures that currently provide access between the parks and the neighborhoods south of US 50. The Cordova Recreation and Park District has also requested that the proposed project at White Rock Park include the addition of sound walls between this park and US 50. Constructing sound walls would require temporary occupancy of this park.

Temporary construction easements in Salmon Falls Park are required for the construction of the Manlove POC. Work within the park includes the replacement of the existing developer wall and a short portion (5-10 ft) of the sidewalk in the park to conform to the new structure. The new POC will be constructed within the existing State right of way.

According to 23 CFR 771, a Section 4(f) evaluation must be prepared when a project will require the use of land from a publicly owned recreational facility (among other categories of land). This use may include temporary occupancy. However, Section 4(f) does not apply to temporary occupancy when the following conditions are met:

- a.) duration (of the occupancy) must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land;
- b.) scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the 4(f) resource are minimal;
- c.) there are no anticipated permanent adverse physical impacts, nor will there be interference with the activities or purpose of the resource, on either a temporary or permanent basis;
- d.) the land being used must be fully restored, i.e., the resource must be returned to a condition which is at least as good as that which existed prior to the project; and
- e.) there must be documented agreement of the appropriate Federal, State, or local officials having jurisdiction over the resource regarding the above conditions.

POC Demolition and Replacement

In the case of the proposed project, impacts to White Rock Park and Salmon Falls Park would be temporary and would not interfere with ongoing recreational activities. The proposed POCs would not affect any of the parks' improved recreational areas (such as tennis courts, basketball courts or the swimming pool). The POCs would not be closed to users as a result of the proposed project; the new crossing structures will be available for use prior to the existing structures' demolition.

The POCs are not a "feature" of the park, per se. They are a means of accessing the park, and are located on its periphery. No adverse permanent physical impacts to the parks or their facilities would be expected. The POCs would be constructed to Americans with Disabilities Act (ADA) standards. The existing POCs will remain operational until the new POCs are completed. The area affected by demolition of the existing POCs would be fully restored, and the parks as a whole would be left in virtually the same condition as that which existed prior to the project.

The replacement of the POC at White Rock Park is being designed in cooperation with representatives of the Cordova Recreation and Park District. This structure would occupy a small portion of the park, similar to the area occupied by the existing POC, and has been included in the Park District's approved White Rock Master Plan. The District Administrator of the Cordova Recreation and Park District has verified, by way of a June 9, 2006 letter, that the proposed project complies with CFR 771.135 regarding temporary construction use and does not require a Section 4(f) evaluation.

The District Administrator of the Cordova Recreation and Park District has also verified, by way of a October 18, 2006 letter, that the replacement of Manlove POC at Salmon Falls Park complies with CFR 771.135 regarding temporary construction use and does not require a Section 4(f) evaluation.

Sound Wall Construction

Construction of sound walls at White Rock Park would also require temporary occupancy of the park. Because this activity would solely take place on the park's edge, no impacts to ongoing recreational activities are likely. The long-term effect of adding sound walls would be to reduce the intrusion of freeway noise into the park. The Park District's Administrator has identified freeway noise as interfering with the overall enjoyment of the park. Sound walls would be an asset to the park's recreational uses.

Measures to Minimize Harm

No measures to minimize harm are required.

Potential Constructive Use of Section 4(f) Properties

Access: The proposed project would not limit access to or through any of the publicly owned recreational areas in the project area.

Noise: The Draft Noise Impact Study Report indicates that there is no potential for constructive use of Section 4(f) properties in the project area under FHWA guidelines.

According to 23 CFR 771.135 (p)(5), a constructive use does not occur when:

(ii) The projected traffic noise levels of the proposed highway project do not exceed the FHWA noise abatement criteria as contained in Table 1, 23 CFR part 772, or the projected operational noise levels of the proposed transit project do not exceed the noise impact criteria in the UMTA guidelines.

(iii) The projected noise levels exceed the relevant threshold in paragraph (p)(5)(ii) of this section because of high existing noise, but the increase in the projected noise levels if the proposed project is constructed, when compared with the projected noise levels if the project is not built, is barely perceptible (3 dBA or less).

According to the project's Noise Impact Study, freeway noise in 2030 would be 1 decibel (dBA) higher if the project were constructed than if it were not. Based on this finding, constructive use of Section 4(f) properties as a result of increased traffic noise would not occur.

Visual Impacts: The Visual Impact Assessment prepared for this project states that the project's visual impacts would be "minimal" for the area east of Highway 99.

Conclusion: The proposed project's build alternatives would not have a constructive use of any of the Section 4(f) properties within the project area. The freeway's proximity will not substantially impair the protected activities, features, or attributes of adjacent publicly-owned parks and recreational areas. White Rock Park and Salmon Falls Park are the only adjacent 4(f) property that would be affected by the project's construction. Based on the above analysis and the Park District's concurrence, temporary construction occupancy of these parks would not qualify as a use of this resource under Section 4(f). On August 8, 2006 and November 1, 2006, FHWA concurred in an email that this project does not require a Section 4(f) evaluation.

APPENDIX D: CONCURRENCE LETTERS FROM SHPO

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov



June 15, 2006

Reply To: FHWA060426A

Jeremy Ketchum, Chief
North Region Environmental Management, Branch S1
Department of Transportation, District 3
PO Box 911
Marysville, CA 95901

Re: Determinations of Eligibility for the U.S. Highway 50 HOV Lane Project,
Sacramento County, CA

Dear Mr. Ketchum:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA)*.

The California Department of Transportation (Department) is requesting my concurrence, pursuant to Stipulation VIII.C.5 of the PA, in its determination that the Coloma Community Center located at 4623 T Street in Sacramento is eligible for the National Register of Historic Places (NRHP) at the local level of significance under criterion C as an example of a Spanish Eclectic school building in Sacramento county. The building is also eligible under criterion C as an important example of the work of prominent Sacramento architects Charles and James Dean. Throughout the 1920s, Dean and Dean designed numerous important buildings in Sacramento, favoring an eclectic use of the Spanish and Mediterranean styles.

Pursuant to Stipulation VIII.C.5 of the PA, the Department has also determined that the following properties are not eligible for the NRHP:

- 3320 T Street
- 3330 T Street
- 1935 Stockton Boulevard
- 1840 40th Street
- 1840 43rd Street
- 1841 44th Street
- 1844 45th Street
- 1841 47th Street
- 1841 48th Street

Mr. Ketchum
June 15, 2006
Page 2

FHWA060426A

- 1841 51st Street
- 1840 52nd Street
- 1817 53rd Street
- 5325 S Street
- 5333 S Street
- 5341 S Street
- 5349 S Street
- 5401 S Street
- 5409 S Street
- 1909 55th Street

Based on review of the submitted documentation, I concur with the foregoing determinations.

Thank you for taking historic properties into account as part of your project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 654-0631 or e-mail at nlind@ohp.parks.ca.gov.

Sincerely,

A handwritten signature in cursive script that reads "Susan K Stratton for".

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

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August 30, 2006

Reply To: FHWA060426A

Gene K. Fong, Division Administrator
Federal Highway Administration
California Division
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

Re: Finding of Effect for the U.S. Highway 50 HOV Lane Project, Sacramento County, CA

Dear Mr. Fong:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA)*.

The Federal Highway Administration (FHWA) is requesting my concurrence, pursuant to Stipulation X.B.1 of the PA, in its finding that the proposed undertaking will have no adverse effect to historic properties, specifically the Sacramento Valley Railroad (SVRR) and the Coloma Community Center, two properties previously determined eligible for the National Register of Historic Places (NRHP).

The widening of the Brighton and West Citrus overhead will slightly increase the area of the SVRR that will be shaded by the bridge structures and the new columns will be in the same alignment as the existing columns. The setting will undergo a very minor change and the railroad tracks beneath the bridges will not be altered. The project as proposed will not diminish the qualities that make it eligible for listing on the NRHP.

A sound wall may be constructed along the northern boundary of the Coloma Community Center in the Highway 50 right-of-way. The proposed wall is anticipated to be ten feet in height and would block the view north from the first floor windows at the rear of the school and from the rear grounds of the property. However, this view is not an important characteristic of the property's setting and has been previously compromised by the building of the freeway.

Based on review of the submitted documentation, I concur with the FHWA's finding of no adverse effect.

Mr. Fong
August 30, 2006
Page 2

FHWA060426A

Thank you for taking historic properties into account as part of your project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 654-0631 or e-mail at nlindquist@parks.ca.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Susan K. Shattuck for".

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

APPENDIX E: GLOSSARY OF TECHNICAL TERMS

Accident Rate - number of accidents per million vehicle miles traveled.

Alluvial Fan - the soil deposits of a stream where it exits from a gorge upon a plain, or the deposits of a tributary stream at its junction with the main stream.

Alluvium - clay, sand, silt, gravel, or similar detrital material deposited by running water.

Best Management Practices - any program, technology, process, operating method, measure, or device that controls, prevents, removes, or reduces pollution.

Block Group - a standard geographical unit of measurement defined by the U.S. Census Bureau.

Capacity - the maximum amount of traffic that can be accommodated by a uniform segment of freeway under prevailing conditions.

Central Valley Regional Water Quality Control Board (CVRWQCB) – Regulatory Agency which oversees groundwater contamination cases.

Erosion - the wearing away of land surface by running water, wind, ice, or other geological agents.

Federal Register - a Federal publication that provides official notice of Federal administrative hearings and issuance of proposed and final Federal administrative rules and regulations.

Holocene - the second epoch of the Quarternary Period characterized by man and modern animals.

Illuvial - accumulation of dissolved or suspended soil materials on one area of horizon as a result of eluviation from another.

Initial Site Assessment (ISA) – This is a term for an ASTM “phase 1” study to determine hazardous waste issues on a project.

Lane numbering – On a multi-lane roadway, that traffic lanes traveling in the same direction are numbered from the left to the right, starting with #1. The leftmost lane is the #1 lane, and is usually referred to by the public as the fast lane.

Level of Service - a measurement of roadway operational performance.

Median - a paved or planted strip dividing a freeway into lanes according to direction of travel.

Mixed Flow Lane - traffic lane for all types of vehicles.

Non-Attainment - a defined geographic area that does not meet one or more Federal ambient air quality standards for pollutants.

Notice of Preparation - part of the CEQA process; a notice sent to responsible agencies to advise that an environmental impact report will be prepared for a project.

Pleistocene - the first epoch of the Quaternary Period characterized by the first indications of social life in man.

Pliocene - the fifth epoch of the Tertiary Period characterized by the transition from hominids to early humans.

Quaternary Period - a geologic period, which includes both the Pleistocene and Holocene Periods, comprising the second portion of the Cenozoic era; characterized by the rise of man and modern animals.

Recurrent congestion - when speeds drop below 35 mph for over 15 minutes.

Staging - a period or step in a progress, activity, or development project.

Throughput - The number of vehicles passing a given point during a given period of time.

Tract - a standard geographical unit of measurement defined by the U.S. Census Bureau.

Trap lane – Traffic lane becomes mandatory off-ramp.

Underground Storage Tanks (USTs) – These tanks typically contain motor vehicle fuel and are placed approximately three feet below the ground surface.

Unmet demand - blocked vehicles.

APPENDIX F: MINIMIZATION AND/OR MITIGATION SUMMARY

Public Health and Safety

All emergency service providers will be notified prior temporary closure of US 50 and the temporary closure of the ramps at Zinfandel Drive and Mather Field Road.

Pedestrian and Bicycle Facilities

To minimize the impact of closing US 50 during the demolition of the two pedestrian over-crossings, the following measures are proposed:

- The demolition of the both structures will not occur at the same time.
- The closures will be noticed in the local media, including newspapers, television, and radio.
- The closures will also be noticed on the changeable message signs that operate on east-bound and west-bound US 50.

Visual/Aesthetics

- For new sound walls, the following measures will ensure minimal visual impact:
 - a. Sound wall design should use materials similar to those placed along other portions of the corridor and should also be compatible with native materials. Similar material, pattern, color, and style are recommended to provide continuity and visual interest to the corridor landscape.
 - b. A landscape plan should be prepared to provide appropriate landscape screening of sound walls to minimize the potential for graffiti and other nuisances. Appropriate landscape materials should be determined based on the placement of the wall and available setbacks. Generally, trees require a 30-foot setback, shrubs need approximately 20 feet and vines can be planted and trained to grow up the wall. A combination of these plantings may be appropriate for this area. The Caltrans' Office of Landscape Architecture can provide a planting design for the project as a part of the sound wall design effort.
 - c. Appropriate aesthetic enhancements should be incorporated for any proposed retaining walls, sound walls, and slope paving. Designs should be in harmony with the existing highway materials and designs used for US 50 and vicinity.

Best Management Practices (BMPs)

- Cut and fill slopes should be contour graded and rounded so as to reflect the contours of adjacent, undisturbed topography to the extent feasible. Grading operations should not result in angular landforms.
- During clearing and grubbing, stockpile existing surface soils and duff from the construction site as part of the excavation work. Resurface all new cut/fill slopes with stockpiled material to enhance re-vegetation efforts.
- Plant species native to the area shall be used when re-vegetation is being performed. Often, native grasses and shrubs are the first to re-colonize after a disturbance event such

as a disease or fire. The Caltrans' Office of Landscape Architecture, with consultation with the Caltrans' biologist, will provide appropriate native species for the project.

- Provide Erosion Control 'Type D' to all disturbed areas.
- Projects disturbing more than 2.4 acres (1 hectare) of land require a National Pollution Discharge Elimination System (NPDES) permit. Disturbance includes all newly paved land surfaces. This permit regulates all storm water discharges associated with significant construction activities. Compliance with the Storm Water Management Plan and Storm Water Quality Standards is also required. These regulations protect fish and wildlife as well as set standards for re-vegetation and erosion control. At the time of design, Caltrans' Office of Landscape Architecture will assist the design team in the development of plans and specifications necessary for compliance with the NPDES and Storm Water Quality Standards.

Cultural Resources

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). Caltrans will work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Floodplain

At locations of nuisance flooding (grate plugging), flanker drainage inlets will be added and existing drainage inlets without side openings will be replaced. The default drainage inlet for this project is a type GDO (double grate w/ side opening). This inlet allows for significant spread and the added safety valve of the side opening. It also allows for longitudinal trunk main alignment that does not interfere with sound wall and barrier placement. Furthermore, slotted drains will be removed from the median and sag areas since records have shown that these facilities are ineffective.

Caltrans' Drainage Team has provided preliminary design for detention storage (both above ground and below) where appropriate and improvements to the conveyance channels to better serve the storm water treatment and conveyance needs of the project.

In the area of outside widening (Bradshaw Road to Sunrise Blvd.) paved concrete ditches are proposed to convey storm water. These are easier to maintain than rock-lined ditches.

Hydrology, Water Quality, and Storm Water Runoff

Adherence to the following is recommended to prevent receiving water pollution as a result of construction activities and/or operation of this section of US 50.

- The project shall adhere to the conditions of the Caltrans Statewide NPDES Permit CAS # 000003, (Order # 99-06-DWQ), issued by the State Water Resources Control Board.

- Construction projects with a disturbed area of more than one acre or by request of a Regional Water Quality Control Board require a Caltrans approved Storm Water Pollution Prevention Plan (SWPPP) containing project specific effective erosion and sediment control measures. These measures must address soil stabilization practices, sediment control practices, tracking control practices, and wind erosion control practices. In addition, the project plan must include non-storm water controls, waste management and material pollution controls. The disturbed soil area appears to exceed one acre and it is anticipated that a SWPPP level of temporary pollution controls will be specified for the project; Standard Special Provision 07-345 therefore shall be included in the Plans, Specifications & Estimates to address these temporary construction water pollution control measures.
- As directed by Caltrans' Storm Water Management Plan (SWMP) and the Project Planning and Design Guide (PPDG) an evaluation of the project using the most recent approved evaluation guide is essential in determining if the incorporation of permanent storm water runoff treatment measures shall be considered for this project.
- If a SWPPP is specified, then a Notification of Construction (NOC) shall be submitted to the Central Valley Regional Water Quality Control Board at least 30 days prior to the start of construction.

Paleontology

Caltrans recommends monitoring where excavation or road cuts will disturb fossil-bearing sedimentary strata. The goal of monitoring is to reduce the adverse impact on paleontological resources within the project area by collecting scientifically significant vertebrate fossils. The contractor undertaking monitoring will adhere to the paleontological mitigation plan that detail the procedures for collecting vertebrate fossils, including recording pertinent geographic and stratigraphic information, stabilization (preservation) methods for the specimens, and make provisions for the remains to be accessioned into the collections of an appropriate repository, and catalogued for future scientific study. Following completion of monitoring, collection, and specimen processing, the contractor should generate a final report detailing the results of the mitigation program. A paleontological mitigation plan for the project was prepared in November 2004.

Hazardous Waste

It is Caltrans policy to avoid all potential aspects of hazardous waste, whenever possible. If involvement becomes necessary prior to, during and/or after construction, protection for employees, workers and the community would be implemented. Confirmation and documentation of suspected hazardous waste issues will be performed, and an attempt will be made to have responsible parties perform the cleanup activities.

For affected soil encountered beneath the project, possible cleanup methods include excavation and disposal of the affected soil at appropriately permitted landfills, aeration of soil in place or aboveground, and bioremediation. Selection of a soil cleanup method will be dependent on the severity of the impacts, the volume of impacted soil, access restrictions to the property, soil conditions, depth to groundwater, and available finances.

For affected groundwater encountered beneath the project, possible cleanup methods include removal of affected water, with subsequent disposal or treatment. Treatment of the affected groundwater may consist of aeration or carbon filtration prior to discharge or injection into the aquifer. Air sparging is another possible cleanup method for groundwater, where air is injected below the groundwater surface in an attempt to strip volatile compounds from the water.

Increasing the oxygen content of the groundwater may also be a benefit to natural biodegradation of the compounds. Selection of a groundwater cleanup method will be dependent on the severity of the impacts, the volume of impacted groundwater, depth to groundwater, soil conditions, and available finances.

Upon selection of a preferred alternative, Caltrans will perform site investigations for all identified properties to confirm or dismiss potential hazardous waste issues. Upon confirmation of hazardous waste issues, responsible parties will be sought for appropriate mitigation.

Air Quality

In order to minimize the temporary construction-related emission impacts, the contractor will be required to use Best Management Practices and comply with Caltrans Standard Specifications, Section 7-1.01F, "Air Pollution Control" and Section 10, "Dust Control." The contractor is also required to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

Noise

Based on the studies so far, Caltrans intends to incorporate noise abatement measures in the form of barriers (sound walls) at the following 11 locations: WB2, WB4, WB5, WB6, WB7, WB8, WB9, EB9, EB11A, EG11B, and EB12. Calculations based on preliminary design data indicate that the barrier(s) will reduce noise levels by 5 to 15 dBA for a total of 468 residences.

Biological Resources

Migratory Birds/Raptors

A pre-construction survey for both white-throated swifts and purple martins will be completed and weep holes in bridges plugged/covered before project work commences.

It is anticipated that migratory birds (swallows and purple martins) may try to nest on bridge structures during the nesting season (March 1st to September 1st). The contractor will take measures as necessary to prevent nesting on portions of the structures that will cause conflict between performing necessary work and nesting purple martins and swallows. If at all possible, work will be performed outside of nesting season in order to avoid nesting birds.

Purple martins and swallows will be allowed to nest in portions of the bridge where conflicts with construction are not anticipated.

Prior to March 1st, exclusionary devices such as wire mesh will be used to block access to nesting sites where work will be performed and left in place until work is completed.

If nesting areas cannot be excluded, daily scalping of partially completed nests is permitted between March 1st and August 31st to discourage nesting. If new nests are built, or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted.

A pre-construction survey should be done prior to project commencement to determine the presence of nesting birds.

Caltrans recommends that the removal of any woody vegetation (trees and shrubs) required for the project is completed between September 1st and February 1st, outside of the predicted nesting season for raptors and migratory birds in this area. Vegetation removal outside this time period may not proceed until a survey by a qualified biologist determines no nests are present or in use.

If woody vegetation removal, construction, grading, or other project-related improvements are scheduled during the nesting season of protected raptors and migratory birds (February 15th to September 1st), a focused survey for active nests of such birds will be conducted by a qualified biologist within two weeks prior to the beginning of project-related activities. If active nests are found, Caltrans will consult with USFWS regarding appropriate action to comply with the Migratory Bird Treaty Act of 1918 and with CDFG to comply with provisions of the Fish and Game Code of California. If a lapse in project related work of two weeks or longer occurs, another survey and, if required, consultation with USFWS and CDFG will be required before the work can be reinitiated.

Bats:

The contractor will take such measures as necessary to prevent disturbing portions of the bridge structure that will cause conflict between performing necessary work and roosting bats.

Bats will be allowed to roost on portions of the bridge where conflicts with construction are not anticipated as determined by a biologist. If contractor work does not conflict with bat roosting, then no further measures are required.

If work interfering with known bat roosts or potential bat roosting structures is proposed to occur between March 1st and October 31st, exclusionary devices such as wire mesh will be used to block access to bat roosting sites in expansion joints near where work will be performed. Under the direction of a biologist, the exclusionary devices will be installed after October 31st, but before March 1st, and left in place until work is completed, and then removed to allow the return of roosting bats.

An optional measure is to install, prior to March 1st, a temporary bat roost ("bat box") near the bridge structure to discourage the use of more marginal day roost sites on the structure. If the contractor's work on the bridge structure occurs between November 1st and February 28th, then no further measures are required.

For all locations, exclusions will consist of durable stiff wire mesh (not bendable "chicken wire") with openings 3/4" or smaller nailed or screwed onto the structure so that the wire mesh is flush against the concrete with no openings. Wire mesh will extend at least two inches in each direction beyond the expansion joint or weep hole opening. All exclusion devices need to be installed between September 1st and February 15th. A biologist should be present during the exclusion device installation. At those locations (if any) where weep holes will be covered or where the weep holes covered access separate chambers (and do not connect to other inner chambers with open weep holes for escape), winter surveys will need to be performed to make sure any potential winter roosting colonies of white-throated swifts are not trapped in the bridge by exclusion devices.

These recommendations may change if design or construction methods/plans change or new information is made available.

The CDFG may require temporary replacement bat day roosts while the project is under construction.

Measures at Specific Locations:

1. Elmhurst Viaduct

A few bats (3 observed) were present in the expansion joint over the Caltrans equipment storage yard. That expansion joint should be excluded. Some swifts are using weep holes. Caltrans recommends exclusion covers for all weep holes in the immediate vicinity of work (from median to halfway point in each direction).

2. Brighton Overhead

There are no current signs of bat use. Swifts are using weep holes. Exclusion will be difficult to coordinate with heavy rail and light rail present. Caltrans recommends exclusion covers for all weep holes in the immediate vicinity of work (from median to halfway point in each direction).

3. West Citrus Overhead

A large colony of bats is using the two expansion joints in the median that run lengthwise on the bridge, mainly concentrated from the south abutment to Folsom Boulevard over the light rail tracks. Caltrans recommends fully excluding expansion joints (underneath and sides) if work will be occurring in their vicinity. Swifts also use the weep holes. Some weep holes have drainage plugs in them already, but not all. Recommend exclusion covers for all weep holes in the immediate vicinity of work.

Elderberry Bush:

The elderberry bush will be surrounded with an environmentally sensitive area fence. A Caltrans biologist will also inform the contractor of the presence and location of elderberry bush.

APPENDIX G: LIST OF ACRONYMS

AADT	Annual Average Daily Traffic
AAQS	Ambient Air Quality Standards
ACM	Asbestos Containing Material
ACS	American Community Survey
ADA	American With Disabilities Act
ADL	Aerially Deposited Lead
APE	Area of Potential Effects
ARPA	Archaeological Resources Protection Act
bgs	Below ground surface
BMP	Best Management Practices
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Compensation & Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon monoxide
CTC	California Transportation Commission
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dba	Decibel- A unit for describing the amplitude of sound.
dbh	Diameter At Breast Height
EA	Environmental Assessment
EB	East-bound
EIR	Environmental Impact Report
EO	Executive Order
ESA	Environmentally Sensitive Area
ESU	Environmentally Significant Unit
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
ft	Feet
HASR	Historical Architectural Survey Report
HOV	High Occupancy Vehicle
in	Inch(es)
IS	Initial Study
ISA	Initial Site Assessment
kv	Kilovolt
L _{dn}	Day-Night Average Sound Level.
L _{eq}	Equivalent Sound Level.
LOS	Level of service
MBGR	Metal Beam Guardrail
MBTA	Migratory Bird Treaty Act

mi	Miles
mph	Miles Per Hour
MSA	Metropolitan Statistical Area
MSAT	Mobile source air toxics
MTIP	Metropolitan Transportation Improvement Program
MTP	Metropolitan Transportation Plan
N/m ²	Newton's/Per Square Meter
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NB	North-bound
NEPA	National Environmental Policy Act
NESR	Natural Environment Study Report
NHPA	National Historic Preservation Act
NO ₂	Nitrogen Dioxide
NOA	Naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NOD	Notice of Determination
NOP	Notice of Preparation
NO _x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O ₃	Ozone
PCC	Portland cement concrete
PM	Post mile
PM ₁₀	Particulate matter 10 microns or less
PM _{2.5}	Fine particulate matter
POC	Pedestrian overcrossing
ppm	Parts per million
PQS	Professionally qualified staff
PSI	Preliminary Site Investigation
RCRA	Resource Conservation & Recovery Act
ROW	Right-of-Way
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SACMET	Sacramento Metropolitan Area Planning Model
SACOG	Sacramento Area Council of Governments
SB	South-bound
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	Sulfur Dioxide
SPL	Sound Pressure Level
SR	State Route
STIP	State Transportation Improvement Program
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
US 50	U.S. Highway 50
USACE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency

USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground storage tank
VIA	Visual Impact Assessment
VMT	Vehicle miles of travel
VOC	Volatile Organic Compounds
vph	Vehicles Per Hour
VQ	Visual Quality
WB	West-bound
WPCP	Water Pollution Control Plan

APPENDIX H: LIST OF TECHNICAL STUDIES

A number of technical studies were used to analyze the impacts of the proposed project. These include:

- Air Quality Analysis Report, May 2006
- Community Impact Assessment, November 2006
- Cumulative Impacts Analysis, September 2006
- Floodplain Hydraulic Study, November 2005
- Historic Property Survey Report, April 2006
- Initial Site Assessment, June 2006
- Natural Environment Study Report, September 2005
- Noise Impact Study Report, September 2006
- Paleontological Evaluation Report, March 2006
- Storm Water Data Report, September 2006
- Traffic Report, September 2006
- Visual Impact Assessment, June 2006
- Water Quality Study, August 2005

Copies of the technical studies are available for viewing, along with copies of the Draft EIR/EA, at:

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APPENDIX I: TRAFFIC VOLUME TABLES

AM Peak Hour* Volume (V in vph) and Average Speed (S in mph) - WB Direction																			Sac-50-441610	
Alternative	Hazel to Sunrise		Sunrise to Zinfandel		Zinfandel to Mather Field		Mather Field to Bradshaw		Bradshaw to Watt		Watt to Howe		Howe to 65th		59th to Stockton		Rte 99/50 to I-5		Cumulative Link Demand Served	Alternative with Highest Cumulative Demand Served (Throughput)
	S	V	S	V	S	V	S	V	S	V	S	V	S	V	S	V	S	V	VPH	Alternative
2004 Existing	55	5030	29	6090	44	6280	38	6540	42	7030	40	7850	42	7300	27	7630	29	7090	60840	
2010 Full HOV Conversion	26	4460	21	5020	19	5080	28	4940	33	5940	23	6310	26	5110	20	5960	18	4820	47640	Alternative 10D V (avg): 6,620-8,350 vph. S (avg): 20-60 mph.
2010 Partial HOV Conversion	60	6490	29	7400	58	7670	45	8000	44	8330	26	8280	28	7230	17	6300	18	5650	53210	
2010 Alt. 10D-1 (26th St.)	57	6560	30	7516	49	7768	35	7957	44	8203	28	8088	28	7139	20	7217	24	7085	67533	
2010 Alt. 10D-3 (Watt)	59	6473	31	7444	54	7766	40	7877	37	8165	30	8118	29	6849	21	7478	21	6792	66962	
2010 No Build	29	5330	23	5910	45	6250	30	6830	43	7590	33	7990	33	6910	24	7230	22	6780	60820	
2020 Full HOV Conversion	21	5210	21	5120	19	5130	37	4950	55	5920	20	6260	22	5340	19	6120	18	6240	50290	Alternative 10D-1 V (avg): 7,090-8,262 vph. S (avg): 19-55 mph.
2020 Partial HOV Conversion	47	7030	29	7620	29	7710	41	7290	52	7830	22	7810	24	6970	19	7030	19	6450	65740	
2020 Alt. 10D-1 (26th St.)	55	7105	35	7847	37	7898	33	7588	42	8262	24	8192	28	7204	19	7710	21	7089	68895	
2020 Alt. 10D-3 (Watt)	52	7087	29	7684	37	7708	43	7465	38	7775	25	7644	26	6537	20	7010	25	6832	65742	
2020 No Build	27	6350	23	6650	35	7150	29	7450	36	7660	21	7550	23	6130	19	6780	20	6930	62650	
2030 Full HOV Conversion	23	5710	22	5860	22	5840	19	5690	30	6570	17	6280	20	5780	17	6340	15	6740	54810	Alternative 10D-1 V (avg): 7,244-8,214 vph. S (avg): 10-44 mph.
2030 Partial HOV Conversion	42	7210	33	7630	35	7850	33	7650	45	8090	23	7980	25	6810	19	6980	15	6470	66670	
2030 Alt. 10D-1 (26th St.)	44	7200	29	7774	32	7951	36	7600	39	8058	23	8214	27	7244	19	7770	22	7255	69066	
2030 Alt. 10D-3 (Watt)	45	6864	28	7562	33	7752	35	7335	39	7461	20	6912	22	6069	17	6943	24	7168	64066	
2030 No Build	24	6600	22	6430	30	6990	25	7560	32	7720	18	7570	22	6390	18	6990	16	6870	63120	

AM Peak Hour* Volume (V in vph) and Average Speed (S in mph) - EB Direction																			Sac-50-441610	
Alternative	I-5 to Rte 99/50		Stockton to 59th		65th to Howe		Howe to Watt		Watt to Bradshaw		Bradshaw to Mather Field		Mather Field to Zinfandel		Zinfandel to Sunrise		Sunrise to Hazel		Cumulative Link Demand Served	Alternative with Highest Cumulative Demand Served (Throughput)
	S	V	S	V	S	V	S	V	S	V	S	V	S	V	S	V	S	V	VPH	Alternative
2004 Existing	64	5930	35	6750	30	6610	31	5900	30	6200	35	6570	52	5960	62	4800	64	4110	52830	
2010 Full HOV Conversion	15	4400	49	6410	48	6260	54	5710	46	6000	33	6390	26	4310	56	4120	64	3800	47400	Option 10D-1 V (avg): 4,736-8,205 vph. S (avg): 47-64 mph.
2010 Partial HOV Conversion	16	4700	51	6390	53	6140	57	5780	56	5890	55	6690	66	6390	67	5160	61	4470	51610	
2010 Alt. 10D-1 (26th St.)	62	7160	47	8205	50	7984	55	7053	56	7200	54	7489	52	6980	63	5508	64	4736	62315	
2010 Alt. 10D-3 (Watt)	61	6797	63	7887	65	7579	43	6661	65	6709	63	7279	65	6834	65	5448	61	4848	60042	
2010 No Build	55	6820	31	7920	26	7660	30	6790	27	7000	30	7440	38	6780	59	5350	63	4560	60320	
2020 Full HOV Conversion	14	4780	41	6410	54	5880	55	5500	51	6030	26	4620	25	4160	57	3940	59	4570	45890	Alternative 6B V (avg): 5,590-8,000 vph. S (avg): 35-67 mph.
2020 Partial HOV Conversion	35	6340	38	7520	51	7450	55	6690	55	7280	32	7420	55	6950	65	5690	63	5650	60990	
2020 Alt. 10D-1 (26th St.)	50	7149	50	8190	46	7734	55	6917	55	7552	46	7786	63	7023	60	5571	64	5898	63820	
2020 Alt. 10D-3 (Watt)	49	6902	65	7925	61	7742	41	6766	62	7155	60	7810	53	7348	65	5858	61	5968	63474	
2020 No Build	49	6910	30	8130	25	7460	29	6820	25	7210	28	7540	34	6770	58	5470	62	5770	62080	
2030 Full HOV Conversion	13	5020	27	6470	23	6100	19	5670	15	6350	24	6450	27	4360	45	4060	60	5060	49540	Option 10D-1 V (avg): 5,783-7,968 vph. S (avg): 35-65 mph.
2030 Partial HOV Conversion	28	6880	30	7450	40	7350	38	6670	41	7350	29	7219	39	7160	49	5850	62	6130	62059	
2030 Alt. 10D-1 (26th St.)	40	7805	49	8129	52	7968	55	7156	53	7667	35	7696	64	7171	50	5783	63	6305	66522	
2030 Alt. 10D-3 (Watt)	50	6807	34	8003	50	7389	54	6472	65	7113	38	7585	64	7157	65	5764	63	6297	63453	
2030 No Build	30	7070	28	8090	24	7490	20	6730	20	7310	25	7600	31	6790	47	5490	61	6030	63172	

* Peak hour indicates a 1-hour period of maximum volumes in the 4 hour peak period. The PM peak hour typically falls between 4:00-5:00 PM in the WB direction.

Notes:

- 2010 models include auxiliary lanes between Zinfandel and Mather Field, and additonal EB ramp meters at Howe and Bradshaw.
- 2020 and 2030 Models include the Rancho Cordova Parkway IC/ with aux. lanes between Sunrise and Hazel. Watt Ave. I/C is modified to L-9. All ramps are metered in both directions (AM and PM).

PM Peak Hour* Volume (V in vph) and Average Speed (S in mph) - WB Direction																			Sac-50-441610	
Alternative	Hazel to Sunrise		Sunrise to Zinfandel		Zinfandel to Mather Field		Mather Field to Bradshaw		Bradshaw to Watt		Watt to Howe		Howe to 65th		59th to Stockton		Rte 99/50 to I-5		Cumulative Link Demand Served	Alternative with Highest Cumulative Demand Served
	S	V	S	V	S	V	S	V	S	V	S	V	S	V	S	V	S	V	VPH	Alternative
2004 Existing	64	3670	43	4740	55	6410	45	7000	56	7240	30	6700	20	5970	17	6970	49	6840	55540	
2010 Full HOV Conversion	19	3760	14	3770	15	4300	14	5200	22	5960	11	4920	15	4050	13	4960	16	4770	41690	Alternative 7B V (avg): 4,772-
2010 Partial HOV Conversion	65	4460	26	6550	16	6720	15	7200	25	7110	13	6350	16	5480	14	5440	13	4420	53730	
2010 Alt. 10D-1 (26th St.)	65	5147	64	6373	16	6519	15	7134	32	7216	12	6247	16	5507	12	6016	53	6797	56956	
2010 Alt. 10D-3 (Watt)	65	5123	65	6385	16	6580	15	6951	25	7306	18	6621	19	5439	15	6619	58	6339	57363	
2010 No Build	40	5130	24	5680	20	6320	17	7080	30	6970	12	6150	16	5380	14	6410	53	6240	55360	
2020 Full HOV Conversion	15	4270	12	3550	15	4430	14	5290	20	6150	11	5130	16	4280	14	5530	19	4750	43380	Alternative 10D-1 V (avg): 5,855-7,923vph S (avg): 12-59mph.
2020 Partial HOV Conversion	54	5720	63	5980	37	7680	19	7830	27	7310	14	6640	18	5660	14	5820	11	4430	57070	
2020 Alt. 10D-1 (26th St.)	59	5855	59	6002	33	7923	21	7929	25	7446	12	6645	17	6131	15	7058	47	7314	62303	
2020 Alt. 10D-3 (Watt)	56	5897	59	5962	24	7595	19	7665	25	7163	12	6478	16	5920	15	7002	56	7076	60758	
2020 No Build	36	5190	23	5700	19	6930	17	7260	27	6570	12	6250	18	5380	15	6110	53	6340	55730	
2030 Full HOV Conversion	13	4980	14	3890	14	4860	15	5660	23	6230	11	5570	15	4740	12	5100	12	4900	58390	Alternative 10D-1 V (avg): 5,829-
2030 Partial HOV Conversion	42	5500	53	6050	40	7670	23	8280	24	7330	12	6780	17	5690	14	5710	12	4420	57430	
2030 Alt. 10D-1 (26th St.)	18	6229	55	5829	39	7888	22	8318	30	7668	12	6920	17	6571	16	7484	40	7242	64149	
2030 Alt. 10D-3 (Watt)	18	6362	55	5984	20	7246	18	7553	23	7045	14	6548	18	5644	14	6173	40	6181	58736	
2030 No Build	35	5200	20	5610	19	6690	17	7040	27	6700	12	6220	16	5190	13	5970	50	5910	54530	

PM Peak Hour* Volume (V in vph) and Average Speed (S in mph) - EB Direction																			Sac-50-441610	
Alternative	Rte I-5 to 99/50		Stockton to 59th		65th to Howe		Howe to Watt		Watt to Bradshaw		Bradshaw to Mather Field		Mather Field to Zinfandel		Zinfandel to Sunrise		Sunrise to Hazel		Cumulative Link Demand Served	Alternative with Highest Cumulative Demand Served (Throughput)
	S	V	S	V	S	V	S	V	S	V	S	V	S	V	S	V	S	V	VPH	Alternative
2004 Existing	19	7000	22	7440	41	7320	40	6720	35	6810	22	6470	23	6360	49	6190	45	5580	59890	
2010 Full HOV Conversion	14	4430	14	5960	25	6360	18	6160	28	5650	23	5610	20	4600	19	5240	39	5160	49170	Alternative 5R
2010 Partial HOV Conversion	15	4580	20	6560	41	6870	40	6930	39	7000	27	7200	24	6530	21	6350	45	5800	57820	
2010 Alt. 10D-1 (26th St.)	19	7107	31	8018	41	7742	28	7369	30	6952	28	7529	20	6699	18	6500	45	5600	63516	
2010 Alt. 10D-3 (Watt)	17	6800	13	6930	35	7209	16	5754	35	5438	27	6745	28	6675	18	6413	45	5593	57557	
2010 No Build	19	6930	15	6750	29	7030	19	6210	29	6510	23	6320	23	6490	20	6390	45	5780	58410	
2020 Full HOV Conversion	12	4470	12	5760	38	6340	20	6210	25	5100	22	5820	20	4750	15	4720	38	4380	57750	Alternative 10D-1
2020 Partial HOV Conversion	13	4590	40	6350	42	6840	47	6860	37	7230	27	7790	21	6460	18	5340	41	5980	57440	
2020 Alt. 10D-1 (26th St.)	20	7177	19	7681	41	7684	45	7408	46	7731	26	7551	22	6835	16	5676	40	6299	64042	
2020 Alt. 10D-3 (Watt)	19	7053	18	7459	42	7719	45	7481	45	7655	27	7560	21	6524	15	5516	40	6244	63211	
2020 No Build	18	7030	14	7160	40	7280	22	6810	27	6090	23	6560	21	5760	16	5550	40	6000	58240	
2030 Full HOV Conversion	12	4580	13	6150	35	6670	17	6520	28	5580	17	6370	19	5330	14	4950	37	4780	50930	Alternative 7B
2030 Partial HOV Conversion	14	4800	47	6650	43	6920	45	6900	39	7280	29	7840	21	6730	18	5850	40	6400	59370	
2030 Alt. 10D-1 (26th St.)	20	7107	14	7388	40	7778	45	7558	42	7887	29	8111	22	6759	16	6033	36	6642	65263	
2030 Alt. 10D-3 (Watt)	18	6972	14	7058	41	7302	45	6960	42	7015	28	7755	22	6646	16	5665	35	6200	61573	
2030 No Build	18	7020	14	7140	37	7270	21	6780	29	6380	25	6820	22	6010	17	5910	40	6360	59690	

* Peak hour indicates a 1-hour period of maximum volumes in the 4 hour peak period. The PM peak hour typically falls between 4:00-5:00 PM in the WB direction.

Notes:

- 2010 models include auxiliary lanes between Zinfandel and Mather Field, and additional EB ramp meters at Howe and Bradshaw.
- 2020 and 2030 Models include the Rancho Cordova Parkway I/C/ with aux. lanes between Sunrise and Hazel. Watt Ave. I/C is modified to L-9. All ramps are metered in both directions (AM and PM).

APPENDIX J: NOISE TABLE

Table J-1: Reasonable Allowance Comparison

Sound Wall	WALL TOTALS FOR VARIOUS HEIGHTS					Total Reasonableness Allowance					Reasonableness Based on Wall Height					Total Cost
	8	10	12	14	16	8	10	12	14	16	8	10	12	14	16	
WB-1	\$8,017,000	\$8,266,000	\$8,539,000	\$8,800,000	\$9,059,000	\$6,128,000	\$6,380,000	\$6,380,000	\$7,088,000	*	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
WB-2	\$902,000	\$964,000	\$1,033,000	\$1,098,000	\$1,163,000	\$862,000	\$874,000	\$900,000	\$912,000	*	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	\$964,000
WB-3	\$2,130,000	\$2,239,000	\$2,357,000	\$2,471,000	\$2,583,000	*	*	*	*	\$250,000	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
WB-4	\$1,037,000	\$1,102,000	\$1,173,000	\$1,240,000	\$1,308,000	*	\$2,416,000	\$2,524,000	\$3,140,000	*	Not Feasible	Feasible	Feasible	Feasible	Not Feasible	\$1,102,000
WB-5	\$556,000	\$625,000	\$701,000	\$774,000	\$846,000	\$1,668,000	\$1,704,000	\$1,736,000	\$1,736,000	\$1,736,000	Feasible	Feasible	Feasible	Feasible	Feasible	\$774,000
WB-6	\$445,000	\$513,000	\$588,000	\$659,000	\$730,000	\$914,000	\$934,000	\$952,000	\$952,000	\$952,000	Feasible	Feasible	Feasible	Feasible	Feasible	\$659,000
WB-7	\$865,000	\$914,000	\$967,000	\$1,017,000	\$1,068,000	\$1,442,000	\$1,458,000	\$1,488,000	\$1,488,000	\$1,488,000	Feasible	Feasible	Feasible	Feasible	Feasible	\$1,017,000
WB-8	\$647,000	\$727,000	\$815,000	\$899,000	\$983,000	\$2,546,000	\$2,578,000	\$2,632,000	\$2,632,000	\$2,640,000	Feasible	Feasible	Feasible	Feasible	Feasible	\$899,000
WB-9	\$1,035,000	\$1,128,000	\$1,230,000	\$1,328,000	\$1,425,000	\$1,264,000	\$1,872,000	\$1,928,000	\$1,928,000	*	Feasible	Feasible	Feasible	Feasible	Not Feasible	\$1,328,000
EB-1	\$9,557,000	\$9,757,000	\$9,976,000	\$10,185,000	\$10,393,000	\$4,020,000	\$4,140,000	\$5,382,000	\$5,394,000	*	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-2	\$2,868,000	\$3,010,000	\$3,166,000	\$3,316,000	\$3,465,000	\$2,420,000	\$2,708,000	\$2,792,000	\$2,874,000	*	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-3	\$447,000	\$515,000	\$590,000	\$662,000	\$733,000	*	*	*	*	*	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-4	\$715,000	\$802,000	\$898,000	\$989,000	\$1,080,000	\$92,000	\$96,000	\$96,000	\$96,000	\$316,000	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-5	\$598,000	\$663,000	\$735,000	\$803,000	\$871,000	\$342,000	\$342,000	\$350,000	\$350,000	\$356,000	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-6	\$1,267,000	\$1,409,000	\$1,566,000	\$1,716,000	\$1,865,000	\$432,000	\$968,000	\$992,000	\$1,010,000	\$1,224,000	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-7	\$640,000	\$730,000	\$830,000	\$925,000	\$1,019,000	\$192,000	\$192,000	\$192,000	\$192,000	\$192,000	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-8	\$3,206,000	\$3,289,000	\$3,379,000	\$3,466,000	\$3,552,000	*	*	*	*	*	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-9	\$1,380,000	\$1,447,000	\$1,519,000	\$1,589,000	\$1,658,000	\$1,172,000	\$1,488,000	\$1,524,000	\$1,536,000	\$1,536,000	Not Feasible	Feasible	Feasible	Not Feasible	Not Feasible	\$1,589,000
EB-10	\$601,000	\$696,000	\$801,000	\$901,000	\$1,000,000	*	*	*	*	\$400,000	Not Feasible	Not Feasible	Not Feasible	Not Feasible	Not Feasible	NA
EB-11A	\$3,227,000	\$3,591,000	\$3,990,000	\$4,372,000	\$4,751,000	\$3,480,000	\$5,552,000	\$5,672,000	\$5,694,000	\$5,752,000	Feasible	Feasible	Feasible	Feasible	Feasible	\$4,372,000
EB-11B	\$1,061,000	\$1,204,000	\$1,361,000	\$1,512,000	\$1,661,000	\$1,496,000	\$1,962,000	\$2,126,000	\$2,150,000	\$2,158,000	Feasible	Feasible	Feasible	Feasible	Feasible	\$1,512,000
EB-12	\$1,106,000	\$1,247,000	\$1,401,000	\$1,548,000	\$1,695,000	\$1,324,000	\$1,748,000	\$1,888,000	\$1,900,000	\$1,904,000	Feasible	Feasible	Feasible	Feasible	Feasible	\$1,548,000

NOTES:
* No reasonableness allowance is provided since a barrier would not provide the required attenuation.
Soundwall costs highlighted in **red** represent recommended wall heights for noise abatement
Soundwall costs highlighted in **blue** represent recommended wall heights for community enhancement.

Contingency includes the following items not quantified in this analysis:

1. Temporary construction easements.

2. Sign replacement/relocation.

3. Type 36 Barrier.

4. Lighting modification.

5. Special requirements by local agencies.
6. Drainage

7. Utilities

8. Additional Stage Construction from Downtown to Oakpark.

9. Post construction/reconstruction of Landscaping or Fencing.